फरवरी
February
2025

खंड/Vol. : 50 अंक/Issue : 30

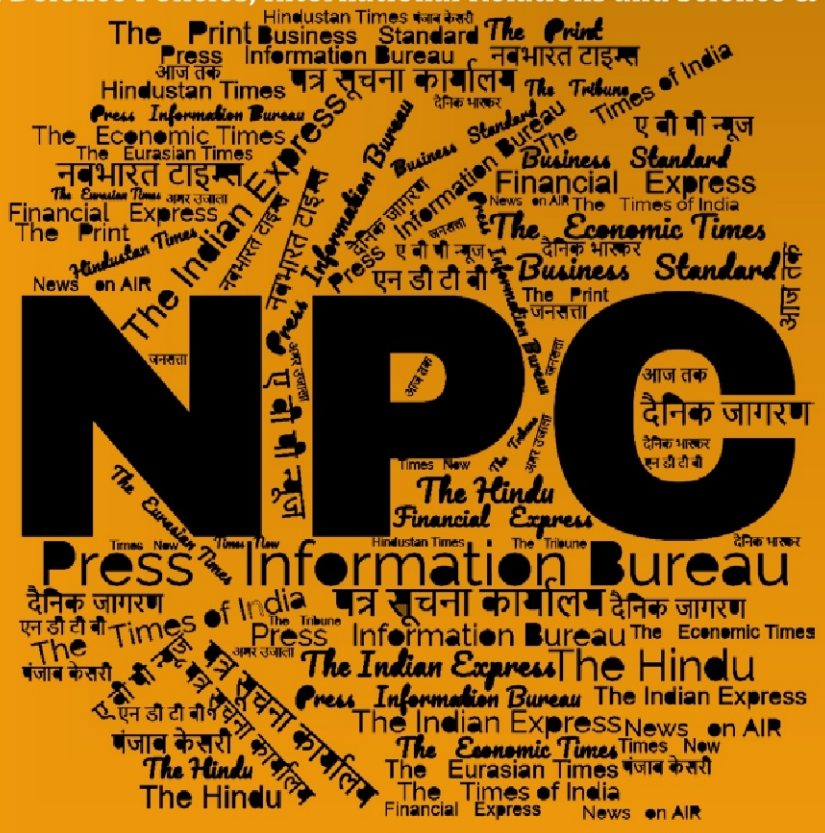
12/02/2025

समाचार पत्रों से चयनित अंश

Newspapers Clippings

डीआरडीओ समुदाय को डीआरडीओ प्रौद्योगिकियों, रक्षा प्रौद्योगिकियों, रक्षा नीतियों, अंतर्राष्ट्रीय संबंधों और विज्ञान एवं प्रौद्योगिकी की नूतन जानकारी से अवगत कराने हेतु दैनिक सेवा

A Daily service to keep DRDO Fraternity abreast with DRDO Technologies, Defence Technologies, Defence Policies, International Relations and Science & Technology



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CONTENTS

DRDO News

DRDO unveils indigenous technologies at Aero India 2025

Source: DD News, Dt. 11 Feb 2025,
URL: https://ddnews.gov.in/en/drdo-unveils-indigenous-technologies-at-aero-india-2025/

The Defence Research and Development Organisation (DRDO) is showcasing cutting-edge technologies and innovations at the 15th edition of Aero India, taking place from February 10-14 at Air Force Station Yelahanka in Bengaluru.

The event, which aims to integrate stakeholders of India's defence R&D ecosystem, features a wide range of DRDO-developed systems, including working models, full-scale prototypes, and interactive displays across various formats such as indoor pavilions, outdoor exhibits, and flying demonstrations.

One of the major highlights of DRDO's participation is the display of the full-scale model of India's first 5.5 Generation stealth aircraft, the Advanced Medium Combat Aircraft (AMCA). Positioned at the India Pavilion, this exhibit underscores India's commitment to its Make-in-India initiative and showcases the nation's defence manufacturing capabilities. Alongside the AMCA, visitors can explore 16 other indigenous DRDO products, including the Twin Engine Deck Based Fighter (TEDBF), LCA Mk-2 Model, Air Droppable Container (ADC) 150, Advanced Lightweight Torpedo, Kaveri Derivative Aero Engine, and various advanced missiles.

The DRDO indoor pavilion, located at Hall-D, is segmented into nine themes, each covering core areas of defence innovation. These themes include "Airborne Surveillance Solutions," "Next-Generation Missile Systems," "Unmanned Aerial Systems," and "RadarScape: Mapping the Invisible," among others.

The pavilion showcases over 330 products organized into 14 technology zones, providing a detailed exploration of critical defence sectors like advanced materials, surveillance technologies, missile systems, electronic warfare, and aero propulsion.

Also, the outdoor segment of DRDO's pavilion highlights real-world applications of defence technologies, including full-scale models of the QRSAM Mobile Launcher Vehicle, Akash NG Launcher, and the Archer UAV (Rustom-1). One of the key attractions is the demonstration of the upgraded Dornier aircraft, which now features enhanced avionics, radar systems, fuel efficiency, and electronic warfare capabilities, showcasing its enhanced role within the Indian Air Force.

On Tuesday, DRDO will conduct a seminar titled "DRDO Industry Synergy towards Viksit Bharat: Make in India – Make for World" at Hall No. 2. The seminar will foster industry engagement, self-reliance in defence, and promote defence exports. Defence Minister Rajnath Singh will inaugurate the event, which will also see the release of policies related to technology transfer, harnessing innovative startups in defence R&D, and promoting DRDO products for export.

Also, an Indigenisation & Valedictory event titled “SAMARTHYA” will take place on Wednesday, organised by the Department of Defence Production (DDP). The event will recognise contributors to indigenous defence technologies, with five DRDO-developed products being showcased, and team leaders will be felicitated by the Defence Minister.

Earlier in February, DRDO also hosted the 15th Biennial Aero India International Seminar in collaboration with the Aeronautical Society of India (AeSI). The seminar, which took place on February 8-9, focused on “Futuristic Aerospace Technologies: Challenges in Design Validation,” providing insights into emerging trends and challenges in aerospace design and military airworthiness.

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Technology has transformed the nature of warfare; India must stay abreast with latest advancements: Raksha Rajya Mantri during DRDO seminar at Aero India 2025

35 Licensing Agreements for Transfer of Technology for 19 cutting-edge tech handed over to 32 Industries during the event

Source: Press Information Bureau, Dt. 11 Feb 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2101894

“As technology has transformed the nature of warfare from conventional to unconventional & asymmetric, India must stay abreast with the latest advancements,” said Raksha Rajya Mantri Shri Sanjay Seth while addressing a DRDO seminar in Bengaluru on February 11, 2025. Raksha Rajya Mantri lauded the efforts of DRDO, industry, including MSMEs & start-ups, and academia in making the country self-reliant in defence manufacturing. He urged them to come out with more latest innovations and contribute in realising the vision of Viksit Bharat by 2047.

The seminar ‘DRDO-Industry Synergy towards Viksit Bharat: Make in India, Make for the World’ was organised on the sidelines of 15th Aero India. During the event, 35 Licensing Agreements for Transfer of Technology (LATOT) for 19 niche technologies of 16 DRDO laboratories were handed over to 32 Industries to nurture indigenous technologies in the defence sector and increase awareness among prospective customers in India & abroad.

Raksha Rajya Mantri also released the revised DRDO policy for Transfer of Technology (ToT). The policy aims to further streamline the ToT process from DRDO to industries, granting them easier access to latest technologies & DRDO expertise, while enhancing the ease of doing business for SMEs in Defence R&D. He also released the updated compendium titled ‘DRDO Products for Export’ consisting of more than 200 products/systems showcasing India's cutting-edge defence capabilities to friendly nations.

An Airworthiness Policy Framework - IMAP-23 was also released during the function. This document provides a paradigm shift in the certification procedure of the military aviation sector by capturing emergent requirements of Indian Industry. An Airworthiness Certification Kit was also

released. It is a comprehensive compilation of policy documents and templates to enable easy appreciation of certification requirements by industries.

During the event, Exchange of Tripartite MoU took place among Centre for Military Airworthiness and Certification, Defence Institute of Advanced Technology and the Aeronautical Society of India on Designated Engineer Representative implementation. The MoU will facilitate training engineers towards undertaking certification tasks.

Defence industries, government agencies, delegations from friendly nations and defence attachés participated in the seminar. It included presentations from scientists and leading experts on export of defence products from India. The event also marked a panel discussion on 'Opportunities for Industries in Defence Export'.

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DRDO showcases indigenously developed state-of-the-art technologies and systems, working models and innovations at Aero India 2025

Full-scale model of India's first 5.5 Gen stealth aircraft Advanced Medium Combat Aircraft (AMCA) is on display

Seminar on 'DRDO Industry Synergy towards Viksit Bharat: Make in India - Make for World' to foster industry engagement, promote self-reliance in defence and provide boost to defence exports

Source: Press Information Bureau, Dt. 11 Feb 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2101598

Defence Research and Development Organisation (DRDO) with an endeavour to integrate various stakeholders of defence R&D ecosystem in the country, is participating in the 15th edition of Aero India during February 10-14, 2025 at the Air Force Station Yelahanka, Bengaluru. It will feature indigenously developed state-of-the-art technologies and systems, working models and innovations in all formats, i.e., Indoor Pavilion, Outdoor Displays, India Pavilion and Flying display.

DRDO for the first time is showcasing a full-scale model of India's first 5.5 Gen stealth aircraft Advanced Medium Combat Aircraft (AMCA) equipped with cutting-edge features at the India Pavilion. This Pavilion at Aero India 2025 will showcase India's commitment to its Make-in-India initiative by displaying indigenous defence manufacturing capabilities and cutting-edge technologies ready for the global stage. The pavilion exemplifies the combined strength of India's private industries, Defence PSUs, start-ups, and DRDO.

Apart from this, visitors to this Pavilion will gain insight from 16 other DRDO developed products and technologies being displayed such as Twin Engine Deck Based Fighter (TEDBF); LCA Mk-2 Model; Air Droppable Container (ADC) -150; Advanced Light Weight Torpedo; Kaveri Derivate

Aero Engine without afterburner , Naval Anti-ship missile - Medium Range and various other missiles.

DRDO indoor pavilion at Hall-D at Aero India is meticulously divided into 9 themes, encompassing core areas of defence innovation. The themes are: 'Airborne Surveillance Solutions', 'Naval Warfare', 'Next-Generation Missile Systems', 'Supremacy in the Skies – ADA's 5th Gen Leap', 'Unmanned Aerial Systems', 'RadarScape: Mapping the Invisible', 'Maritime Sentinel: A New Era of Surveillance & Safety', 'Sensors Suite for Fighter Aircraft' and 'Rakshak'. The Pavilion is displaying over 330 products which are categorised into 14 technology zones. It will provide an in-depth exploration of key defence areas, namely Advanced Materials & Composites; Surveillance & Reconnaissance Technology; Antenna & Microwave Technology; Soldier Support Systems; Combat Aircraft Technology; Corporate Directorates; Micro Electronic Devices, Computational Systems and Cyber Security; Land Systems & Munitions; Missile Technology; Next-Gen Combat Vehicles & Tactical Mobility; Photonics, Laser and Quantum Technology; Electronic Warfare & Communication; Simulation & Training Technology; and Aero Propulsion Technology. The indoor pavilion is also displaying the products developed under Technology Development Fund (TDF) Scheme being executed by DRDO.

The outdoor segment of DRDO pavilion is designed to demonstrate the real-world application of cutting-edge defence technologies featuring full-scale model of QRSAM Mobile Launcher Vehicle, Akash NG Launcher; Archer 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 VHF Radar. The demonstration of Dornier aircraft's midlife upgrade is one of the main highlights of DRDO's participation at the Aero Show. The upgraded Dornier is showcasing enhanced avionics, better fuel efficiency, advanced radar systems, enhanced manoeuvrability, integrated surveillance systems, and improved electronic warfare capabilities, reinforcing its role as a dependable asset of the Indian Air Force.

DRDO will conduct a seminar with the theme 'DRDO Industry Synergy towards Viksit Bharat: Make in India - Make for World' at Hall No. 2 on February 11, 2025. The seminar will foster industry engagement, promote self-reliance in defence and provide a boost to defence exports. Members of Academia, Indian Private Industry, StartUps, PSUs, and DRDO will participate in this seminar. Raksha Rajya Mantri Shri Sanjay Seth will inaugurate the event and will release the Revised Policy for ToT, DRDO Policy for Harnessing Innovative Startups in Defence R&D and Compendium of DRDO Products for Export. During the seminar, Handing Over of Licensing Agreement for Transfer of Technology (LATOT) to Industries will also take place. At the event, Secretary DDR&D and Chairman DRDO Dr. Samir V Kamat will chair a panel discussion on Opportunities for Industries in Defence Export to foster a collaborative environment for enhancing defence exports.

Under the banner of Aero India 2025, an Indigenisation & Valedictory event themed as 'SAMARTHYA' will be organised on February 12 by Department of Defence Production (DDP), to recognise and felicitate the contributors of Indigenously developed cutting edge technologies. Five DRDO developed products have been recognised to be showcased and Team leader of these products will be felicitated by the Raksha Mantri. The details are:

1. Shri Y Dilip, Director ADE Bengaluru for Computerised Pilot Selection System (CPSS)
2. Dr MSY Siva Prasad, PD RudraM II, RCI Hyderabad
3. Ms M Backialakshmi, CABS Bengaluru for Automatic Dependent Surveillance Broadcast (ADS-B) Receiver
4. Smt T Sirisha, RCI, for Naval Anti-Ship Missile–Short Range
5. Shri Vishal Dwivedi, CFEES Delhi for Fire Wire for Integrated Fire Detection and Suppression System for BMP, T-72 and T-90.

As a prelude to Aero India, DRDO also organised the 15th edition of the Biennial Aero India International Seminar in association with the Aeronautical Society of India (AeSI) during February 8-9, 2025 in Bengaluru. The theme of the seminar was 'Futuristic Aerospace Technologies: Challenges in Design Validation', covering emerging trends in futuristic aerospace technologies and military airworthiness & certification: challenges in design and testing. This seminar provided valuable insights about cutting-edge technologies, a platform to explore collaborative research opportunities and forge strategic partnerships, while advancing the future of aerospace and defence technologies.

DRDO's exhibition at Aero India 2025 is an excellent opportunity for the Indian aerospace community to foster the cause of indigenous development of military systems and technologies with the spirit of self-reliance & national pride. Working towards the vision of Samarth and Shashakt Bharat, DRDO is developing the indigenous capabilities of the country by equipping the Armed Forces with state-of-the-art technologies/equipment, and bolstering the defence sector through collaboration with the private sector.

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BrahMos supersonic missile is generating interest globally: DRDO chief

Source: Business Standard, Dt. 12 Feb 2025,
URL: https://www.business-standard.com/external-affairs-defence-security/news/brahmos-supersonic-missile-is-generating-interest-globally-drdo-chief-125021200067_1.html

Defence Research and Development Organisation (DRDO) Chairperson Samir V Kamat on Tuesday said that India's BrahMos supersonic cruise missile is generating significant interest globally, with several countries eager to acquire the advanced weapon system.

He said that Indonesia has expressed interest in the BrahMos, along with other countries in the Middle East and Southeast Asia

Speaking with ANI, Kamat said, "Indonesia is interested...There are other countries also who have shown interest in Brahmos...Some countries in the Middle East and some other countries in Southeast Asia."

While Kamat refrained from divulging further details, citing the sensitive nature of the discussions, he expressed confidence in India's growing defence exports.

"But it's too early because these are sensitive matters. So unless the talks progress to a level where we have confidence that they are going ahead, I don't want to say anything...," he said.

Speaking on India's defence exports, DRDO chief predicted that exports would double or triple in the next five years, with the organisation playing a pivotal role in achieving this target.

"I am confident that our exports will double or triple in the next five years and DRDO will have a big role to play in that...By this year we expect Rs 26,000 crores. By next year Rs 30,000 crores. By 2028-29, Rs 50,000 crores. By 2035 Rs 1 lakh crore. This is the target set by Defence Minister and we are fully committed to achieving this target..," he said.

The BrahMos supersonic cruise missile, a joint venture between the Defence Research and Development Organisation (DRDO) and Russian Federation's NPO Mashinostroyeniya, is said to be one of the most successful missile programs in the world.

Acknowledged as the foremost and swiftest precision-guided weapon on a global scale, BRAHMOS has played a pivotal role in enhancing India's deterrence capabilities.

The Indian Army has integrated multiple BrahMos regiments into its arsenal since 2007.

Meanwhile according to source, India and Indonesia have agreed to begin negotiations on the BrahMos supersonic missile deal, with Indonesian teams expected to visit India soon for the talks. One important requirement for the missile deal with Indonesia will be approval from Russia.

India has successfully sold the BrahMos missile to the Philippines, which placed an order worth over USD 335 million a few years ago. The missile deliveries have already taken place, and more deliveries are expected soon.

Many countries, including Vietnam, Malaysia, Indonesia, and several nations in the Middle East, have shown interest in the India-Russia joint venture missile system, which incorporates many components from Russia.

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Parachutes for planes: Why is DRDO's tech transfer deal for Su-30 brake system important?

Source: Firstpost, Dt. 12 Feb 2025,
URL: https://www.firstpost.com/india/aero-india-2025-drdo-transfer-of-technology-oef-hazratpur-su-30-braking-system-13862218.html

In a boost for India’s self-reliance in defence manufacturing, the Defence Research and Development Organisation (DRDO) has transferred the technology for the Su-30 Brake Parachute system to Ordnance Equipment Factory (OEF), Hazratpur. The Transfer of Technology (ToT) was officially handed over at the Aero India 2025 event –happening in Bengaluru, Karnataka– by the Minister of State for Defence Sanjay Seth to OEF Hazratpur’s General Manager Amit Singh.

We take a look at what the brake parachute system is and why it's important.

Brake parachute: A key safety system

The Brake Parachute system is a crucial safety mechanism designed to decelerate fighter aircraft during landing, preventing runway overruns.

DRDO has transferred the technology for the Su-30 Brake Parachute system to Ordnance Equipment Factory (OEF), Hazratpur

Parachute braking system on display

It ensures safe stopping distances in both routine and emergency conditions, particularly for high-speed aircraft such as the Su-30MKI.

All fighter aircraft of the Indian Air Force operating within the country are equipped with indigenously designed and developed Brake Parachutes.

Why is the ToT important?

The Ordnance Factory Board (OFB) is an organisation that manages the Indian Ordnance Factories, which produce defence equipment. The OFB is part of the Department of Defence Production in the Ministry of Defence.

OEF Hazratpur has been a key player in manufacturing specialised defence parachutes and aerial delivery systems. The factory has collaborated with DRDO on multiple projects and is set to integrate the Su-30 Brake Parachute into its production line.

Transfers of technology, which has been an important contributing factor to the building of capability in India's defence industrial base, will ease the process extensively.

Amit Singh, General Manager of OEF Hazratpur, expressed appreciation for the trust placed in the factory, "We are honored to receive this ToT from DRDO, reinforcing OEF Hazratpur's commitment to indigenization, enhancing defence manufacturing capabilities, and contributing to India's self-reliance in critical aerospace technologies for the Indian Air Force," Singh told Firstpost.

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Aero India Exhibition : अडानी डिफेंस और DRDO की कामयाब पेशकश, ड्रोन के खतरे बचाने के लिए तैयार किया अनोखा डिफेंस सिस्टम

Source: India TV, Dt. 11 Feb 2025,
URL: https://navbharatlive.com/business/aero-india-exhibition-update-for-adani-defence-and-drdo-1125480.html

अडानी ग्रुप की डिफेंस यूनिट अडानी डिफेंस एंड एयरोस्पेस ने डीआरडीओ के साथ मिलकर मंगलवार को एयरो इंडिया एक्जीबिशन में भारत की गाड़ियों पर लगाए जाने वाले एंटी ड्रोन सिस्टम को लॉन्च किया है।

रक्षा अनुसंधान एवं विकास संगठन यानी डीआरडीओ के इलेक्ट्रॉनिक्स और संचार प्रणाली से जुड़े महानिदेशक डॉ बी के दास ने यहां चल रही डिफेंस एक्जीबिशन के दौरान इस सिस्टम को डिफेंस एक्सपर्ट्स और इंडस्ट्री पार्टनर की उपस्थिति में लॉन्च किया। अडानी डिफेंस एंड एयरोस्पेस ने बयान में कहा है कि ये एडवांस सिस्टम उभरते हवाई खतरों के खिलाफ भारत की रक्षा तैयारियों को मजबूती देने में एक महत्वपूर्ण कदम है। एडवांस वॉर में टोही और आक्रामक अभियानों दोनों के लिए ड्रोन के बढ़ते उपयोग के साथ, एक मजबूत एंटी ड्रोन सिस्टम की जरूरत बढ़ गई है।

दमदार सिस्टम

बयान के अनुसार, वाहन पर लगने वाली एंटी ड्रोन सिस्टम लंबी दूरी की सुरक्षा, चपलता और सटीकता सुनिश्चित करती है, जो इसे आधुनिक सैन्यबलों के लिए एक दमदार सिस्टम बनाता है। यह स्वचालित पहचान, वर्गीकरण और ड्रोन को बेअसर करने सहित उन्नत संवेदी क्षमताओं के जरिये निर्बाध सुरक्षा प्रदान करती है।

एंटी ड्रोन सिस्टम

कंपनी ने कहा कि एक गाड़ी पर लगे इस सिस्टम में अत्यधिक सचल, चुस्त, विश्वसनीय और आत्मनिर्भर ड्रोन-रोधी समाधान मुहैया कराती है। इस एंटी ड्रोन सिस्टम में ड्रोन को सटीकता से मार गिराने के लिए एक उच्च-क्षमता वाली लेजर प्रणाली, हवाई खतरे से निपटने के लिए 7.62 मिमी की बंदूक और 10 किलोमीटर की दूरी तक वास्तविक समय में निशाना ढूंढने, ट्रैकिंग और उसे निष्क्रिय करने के लिए एडवांस रडार, इलेक्ट्रो-ऑप्टिकल सेंसर और जैमर लगे हुए हैं।

क्विक रिएक्शन

कंपनी ने कहा कि एक ही प्लेटफॉर्म पर कई एंटी ड्रोन टेक्नोलॉजी का एकीकरण होने से यह क्विक रिएक्शन और लचीले संचालन को सुनिश्चित करता है। इससे यह प्रणाली भारत के रक्षा बुनियादी ढांचे की सुरक्षा के लिए एक महत्वपूर्ण जरिया बन जाती है। अडानी डिफेंस एंड एयरोस्पेस के मुख्य कार्यपालक अधिकारी यानी सीईओ आशीष राजवंशी ने कहा है कि यह पेशकश भारत के डिफेंस इनोवेशन इकोलॉजी की सफलता का प्रमाण है, जो डीआरडीओ के वर्ल्ड क्लास शोध एवं विकास और प्रौद्योगिकी हस्तांतरण यानी टीओटी ढांचे द्वारा संचालित है। हमें डीआरडीओ की अत्याधुनिक प्रौद्योगिकी को परिचालन के लिए तैयार समाधान में बदलने पर गर्व है।

बिजनेस की अन्य खबरें पढ़ने के लिए यहां पर क्लिक करें

इस अवसर पर डीआरडीओ के डॉ दास ने कहा कि इस डिफेंस सिस्टम की शुरुआत अलग तरह के खतरों के खिलाफ भारत की डिफेंस तैयारियों को बढ़ाने में एक महत्वपूर्ण कदम है। यह प्रणाली कई एंटी ड्रोन टेक्नोलॉजीज को एक अत्यधिक सचल प्लेटफॉर्म पर लेकर आती है जिससे क्विक रिएक्शन और परिचालन लचीलापन सुनिश्चित होती है।

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इजरायल के Iron Dome की तरह भारत ने तैयार किया 'रक्षा कवच', खूबियां जानकर हो जाएंगे दंग

Source: India TV, Dt. 11 Feb 2025,
URL: https://www.indiatv.in/india/national/drdo-developed-raksha-kavach-multi-layer-protection-like-israel-iron-dome-know-features-here-2025-02-11-1112583

दुनियाभर में इजरायल के आयरन डोम डिफेंस सिस्टम की चर्चा होती रहती है। अब भारत के रक्षा अनुसंधान विकास संगठन यानी DRDO ने आयरन डोम की तरह डिफेंस सिस्टम तैयार किया है। इस डिफेंस सिस्टम को

'रक्षा कवच' नाम दिया गया है। इस रक्षा कवच की मदद से देश के मिलिट्री एसेट की सुरक्षा होगी। DRDO के स्वदेशी रक्षा कवच – मल्टी-लेयर प्रोटेक्शन एयरो इंडिया 2025 में दिखाया गया है।

क्या हैं रक्षा कवच की खूबियां?

DRDO का "रक्षा कवच" एक अत्याधुनिक मल्टी-लेयर प्रोटेक्शन सिस्टम है, जिसे सैनिकों, बख्तरबंद वाहनों और महत्वपूर्ण रक्षा परिसरों को सुरक्षा प्रदान करने के लिए डिज़ाइन किया गया है। मल्टी-लेयर डिफेंस कई स्तरों की सुरक्षा प्रदान करता है, जिसमें बैलिस्टिक, विस्फोट और इलेक्ट्रॉनिक सुरक्षा शामिल है। इसमें हल्के लेकिन मजबूत नैनो-टेक्नोलॉजी आधारित कंपोजिट मटेरियल्स का उपयोग किया गया है, जिससे यह अधिक टिकाऊ और प्रभावी बनता है।

तुरंत प्रतिक्रिया करने की क्षमता

रक्षा कवच खतरों का पूर्वानुमान लगाकर तुरंत प्रतिक्रिया करने की क्षमता रखता है। इसे वाहनों, सैनिकों के बॉडी आर्मर और स्थायी सुरक्षा संरचनाओं में आसानी से एकीकृत किया जा सकता है। रक्षा कवच का उद्देश्य भारतीय सशस्त्र बलों को अत्याधुनिक सुरक्षा समाधान प्रदान करना है, जिससे वे किसी भी प्रकार के युद्धक्षेत्र खतरों से प्रभावी रूप से निपट सकें। यह आत्मनिर्भर भारत अभियान के तहत स्वदेशी रक्षा उत्पादन को भी बढ़ावा देता है।

खतरे को हवा में ही न्यूट्रलाइज करेगा रक्षा कवच

रक्षा कवच की इस अत्याधुनिक प्रणाली से भारत की रक्षा क्षमताएं और मजबूत होंगी, जिससे दुश्मनों के हमलों को प्रभावी रूप से रोका जा सकेगा। सेटेलाइट पर आधारित निगरानी प्रणाली के साथ-साथ, टोही UAV's, एयरबोर्न वार्निंग एंड कंट्रोल सिस्टम, हवा से हवा में मार करने वाली मिसाइल, कैल एडवांस्ड टोड आर्टिलरी गन सिस्टम, ड्रोन का पता लगाने, रोकने और नष्ट करने वाले सिस्टम,मध्यम शक्ति का रडार अरुधरा, हल्के वजन वाले टारपीडो, इलेक्ट्रॉनिक युद्ध प्रणाली वाला धर्मशक्ति, लेजर आधारित ऊर्जा हथियार और कम दूरी वाली वायु रक्षा प्रणाली, स्वदेशी सुरक्षित सैटेलाइट फोन और असॉल्ट राइफल होगी। इन सबको मिलाकर DRDO ने एक ऐसा रक्षा कवच बनाया है जो दुश्मन के किसी भी खतरे को हवा में ही न्यूट्रलाइज करने की क्षमता और दक्षता रखता है।

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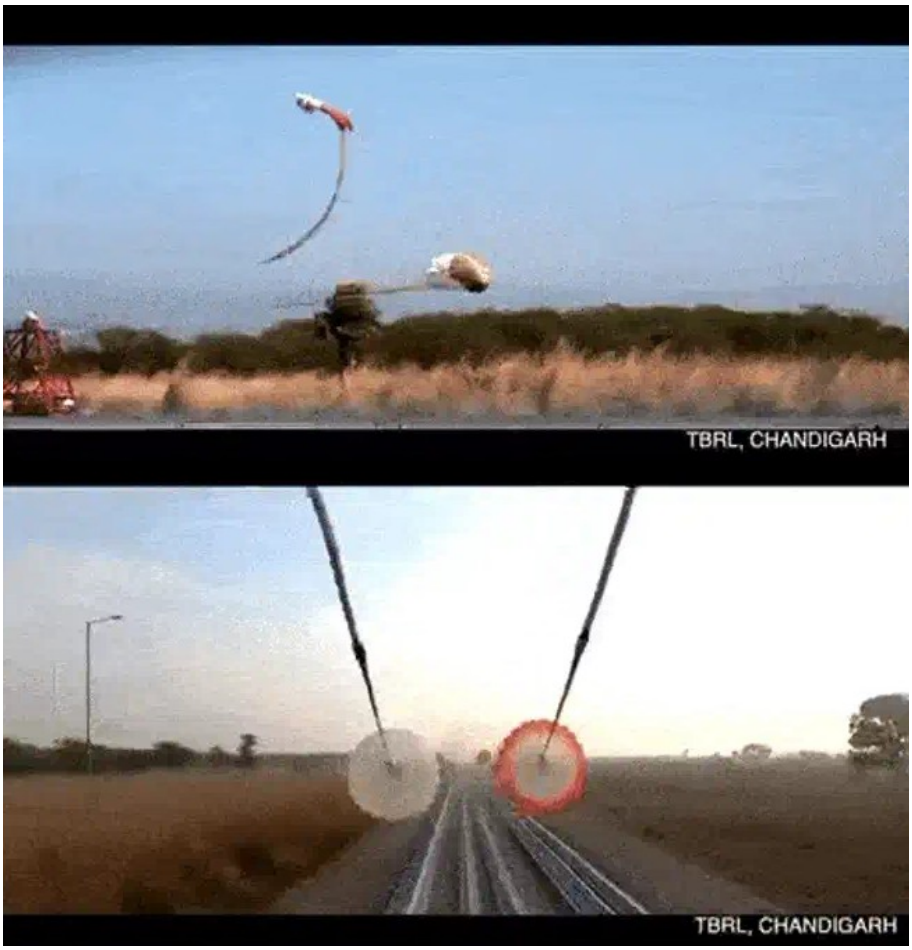
DRDO Successfully Tests Drogue Parachutes: How They Will Help Astronauts In ISRO's Gaganyaan Mission

Source: Republic World, Dt. 12 Feb 2025,
URL: https://www.republicworld.com/science/drdo-successfully-tests-drogue-parachutes-how-they-will-help-astronauts-in-gaganyaan-mission

DRDO has successfully tested newly developed drogue parachutes for ISRO ’s first crewed and one of most advanced Gaganyaan missions. The drogue parachutes, which were tested at Rail Track Rocket facilty (RTRS) facility TBRL in Chandigarh, have been jointly developed by Vikram Sarabhai Space Centre (VSSC) and Aerial Delivery Research and Development Establishment (ADRDE).

Taking to X, formerly Twitter, DRDO wrote, “Gaganyaan Drogue parachutes jointly developed by VSSC and ADRDE were successfully tested at RTRS facility TBRL, Chandigarh. The test involved simultaneous firing of two Drogue parachutes to simulate deployment at maximum Angle of attack of Crew module during descend.”



DRDO also shared a video showing how the new drogue parachutes performed the task during the trial. The 14-second clip showed drogue parachutes demonstrating the de-acceleration process at the Rail Track Rocket facilty of the Terminal Ballistics Research Laboratory in Chandigarh.

How DRDO's Drogue parachutes will be used during Gaganyaan?

The drogue parachutes will be helpful in de-accelerating and reducing the speed of the space vehicle during astronauts re-entry on earth during the Ganganyaan mission. Last month, ISRO informed that the Liquid Propulsion Systems Centre had dispatched the Crew Module for the first uncrewed mission of Gaganyaan (G1) after successfully completing the integration of the liquid propulsion system.

“On 21 January 2025, the Liquid Propulsion Systems Centre (LPSC) of ISRO dispatched the Crew Module for the first uncrewed mission of Gaganyaan (G1), after successfully completing the integration of the liquid propulsion system,” ISRO said in a statement. LPSC, Bengaluru has dispatched the module to Satish Dhawan Space Centre, Sriharikota, officials said.

According to the space agency, the Crew Module Propulsion System (CMPS) is a bi-propellant based Reaction Control System (RCS) and is meant for precise three axis control namely Pitch, Yaw and Roll, of crew module. The control will be initiated following separation of service module during the descent and re-entry phase until the deployment of parachute-based deceleration system.

Gaganyaan will be ISRO's first attempt towards acquiring human spaceflight capabilities. Before sending the crew, the ISRO is planning to send uncrewed mission to the space under its Gaganyaan project.

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DRDO expands Pinaka rocket system for naval & air force applications

Source: The Times of India, Dt. 12 Feb 2025,
URL: https://timesofindia.indiatimes.com/city/bengaluru/drdo-expands-pinaka-rocket-system-for-naval-air-force-applications/articleshow/118155286.cms

The Defence Research and Development Organisation (DRDO) is broadening its successful Pinaka rocket programme to meet new requirements of Indian Navy and Air Force, marking a significant expansion beyond its traditional army deployment.

"We already got PSQR (Provisional Staff Qualitative Requirements) from the navy. We intend to demonstrate the first trial this year. Similarly, IAF is also looking to induct Pinaka for their operational requirements," A Raju, director of Armament Research and Development Establishment (ARDE), told TOI.

Development is under way for specialised naval variants, capable of underwater operations and submarine countermeasures. The naval version, targeting a range of 75km, is scheduled for its first trial this year, following successful internal testing. The IAF is also seeking to adopt modified Pinaka systems, viewing them as a cost-effective alternative to more expensive options like Pralay missile for forward areas. The IAF variants will include both surface-to-surface missiles and air-to-surface capabilities for Su-30 aircraft.

Meanwhile, DRDO is advancing the development of an enhanced 120-km strike version of Pinaka with developmental trials expected to commence within months, according to Prateek Kishore, director-general of the armament and combat engineering cluster. The Pinaka system has already achieved export success, with Armenia as a confirmed buyer and growing interest from several European nations, including France. "There are many countries showing interest in the Pinaka as a complete rocket system," Kishore noted, emphasising its competitive pricing and quality standards.

The guided version of Pinaka has completed trials and is expected to be inducted into service shortly, further enhancing India's indigenous defence capabilities.Pinaka is the total indigenous rocket system, and cabinet committee on security cleared the project to buy more than Rs 10,000 crore worth of ammunition for Indian army's Pinaka multi-barrel rocket launcher systems in Jan.

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Aero India 2025: Adani Defence & Aerospace, DRDO unveil India's vehicle-mounted counter-drone system

Source: The Print, Dt. 11 Feb 2025,
URL: https://theprint.in/economy/aero-india-2025-adani-defence-aerospace-drdo-unveil-indias-vehicle-mounted-counter-drone-system/2488991/

Adani Defence & Aerospace, in collaboration with the Defence Research and Development Organisation (DRDO) on Tuesday unveiled India's public-private partnership-based Vehicle-Mounted Counter-Drone System at Aero India 2025. According to Adani, the platform was launched by Dr BK Das, Director General (Electronics & Communication System), DRDO, in the presence of esteemed guests from DRDO, defence experts, and industry partners, underscoring India's commitment to strengthening indigenous defence capabilities.

Developed in collaboration with DRDO, this state-of-the-art system marks a significant step in enhancing India's defence preparedness against evolving aerial threats. With the increasing use of drones in modern warfare for both reconnaissance and offensive operations, the need for a robust anti-drone mechanism has become imperative.

The Vehicle-Mounted Counter-Drone System ensures long-range protection, agility, and precision, making it a formidable asset for modern defence forces. It offers seamless protection through advanced sensor capabilities, including automatic detection, classification, and neutralization of drones. Integrated onto a single 4×4 vehicle, the system provides a highly mobile, agile, reliable, and self-sufficient counter-drone solution. It features a high-energy laser system for precise drone neutralization, a 7.62 mm gun for aerial threat engagement, and advanced radar, SIGINT, electro-optical sensors, and jammers for real-time target acquisition, tracking, and neutralization within a range of 10 km.

The integration of multiple counter-drone technologies into a single platform ensures rapid response and operational flexibility, making it a critical asset for securing India's defence infrastructure. Speaking on the occasion, Ashish Rajvanshi, CEO of Adani Defence & Aerospace, said, "This unveiling is a testament to the success of India's defence innovation ecosystem, driven by DRDO's world-class R&D and the Transfer of Technology (ToT) framework."

He added, "Adani Defence & Aerospace is proud to translate DRDO's cutting-edge technology into an operationally ready solution that strengthens our armed forces' ability to counter evolving drone threats. By leveraging our advanced manufacturing capabilities, we are committed to ensuring that our armed forces have access to the most advanced, indigenous defence technologies to safeguard the nation's strategic interests."

The Director General (Electronics & Communication System), DRDO, added, "The introduction of the Vehicle-Mounted Counter-Drone System is a crucial step in enhancing India's defence preparedness against asymmetric threats. This system integrates multiple counter-drone technologies into a highly mobile platform, ensuring rapid response and operational flexibility."

He said, "DRDO remains committed to developing indigenous, next-generation solutions in collaboration with the Indian industry to strengthen national security. We are confident that this

system will play a pivotal role in securing key defence and civilian assets against the increasing threat posed by rogue drones."

The launch of this system reinforces India's commitment to developing cutting-edge defence technologies indigenously, reducing reliance on imports, and bolstering national security. As unmanned aerial threats continue to evolve, the collaboration between Adani Defence & Aerospace and DRDO marks a significant milestone in advancing India's defence capabilities with world-class, homegrown solutions.

Aero India 2025 serves as a global platform to showcase India's advancements in aerospace and defence, and the unveiling of this system reaffirms the country's position as a key player in the global defence and aerospace sector.

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Special DRDO scientists: Hand behind flares at Aero India

Source: The New Indian Express, Dt. 11 Feb 2025,
URL: https://www.newindianexpress.com/states/karnataka/2025/Feb/11/special-drdo-scientists-hand-behind-flares-at-aero-india

The audience at Aero India is not just awestruck by the scintillating aerobatic display of aircraft but also by the flares released from them while performing daredevil stunts.

While the audience knows all about the aircraft performing the maneuvers, not many know who makes the flares released by the metal birds. The flares released from the popular Surya Kiran pilots from their Hawk MK-132, or the Sarang's HAL Dhruv or the Tejas, are made by a team of special scientists in the Defence Research and Development Organisation (DRDO) unit in Pune.

"The initial use of flares started as a defence mechanism or a warfare tactic. It was introduced in display sorties two decades back, and since then, there has been no looking back. The size of the flares in aircraft depends upon their size and shape.

They can be used in all types of aircraft. Each of them has special pods where they are fixed and released," a DRDO scientist explained. He added that a separate flare is released for each aerial act, and so each aircraft carries 100s-1000s depending upon the type of operation.

They can weigh anything between 100- 770 grams and are made by the High Energy Material Research Lab (HEMRL) in DRDO in Pune.

Not wanting to divulge the material used in making the flares, the scientist assured that eco-friendly, military-grade dye is used for the colours orange and green. "Everything is indigenously made, and the scientists are now pros in making them. They are producing not less than a thousand a day. They are also used in bird scare operations. Work is also on to upgrade them and have improvised versions from the existing 200 mm- 50 mm variants," the scientist said.

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Aero India 2025: DRDO unveils 155 mm ramjet projectile

Source: Janes, Dt. 11 Feb 2025,

URL: https://www.janes.com/osint-insights/defence-news/weapons/aero-india-2025-drdo-unveils-155-mm-ramjet-projectile

DRDO displayed a new 155 mm ramjet projectile at Aero India 2025.

India's Defence Research and Development Organisation (DRDO) displayed a new 155 mm ramjet projectile for Bharat Forge Limited's (BFL's) 155 mm/52 calibre Advanced Towed Artillery Gun System (ATAGS) at the Aero India 2025 show in Bangalore.

A DRDO spokesperson told Janes on 10 February that it is currently “establishing the technology” that sits behind the munition. He said the projectile is intended to extend the range of the ATAGS by up to 80 km compared with its existing range of 45 km.

India's Chief of the Army Staff Lieutenant General Upendra Dwivedi announced in January in a press conference that a contract to procure ATAGS is expected to be finalised by March 2025. The DRDO spokesperson told Janes that the Indian Army will receive 307 ATAGS units under this deal.

ATAGS was jointly developed during the 2010s by DRDO in collaboration with industry partners, including BFL and its subsidiary Kalyani Strategic Systems Limited (KSSL) as well as Tata Advanced Systems Limited (TASL).

According to Janes Land Warfare Platforms: Artillery & Air Defence, ATAGS weighs 12 tonnes. It can fire six rounds in 30 seconds and five successive rounds in a short duration.

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Aero India 2025: DRDO unveils VHF surveillance radar

Source: Janes, Dt. 11 Feb 2025,

URL: https://www.janes.com/osint-insights/defence-news/c4isr/aero-india-2025-drdo-unveils-vhf-surveillance-radar

DRDO's new VHF-SR radar is seen displayed at Aero India 2025

India's Defence Research and Development Organisation (DRDO) has unveiled a new very-high-frequency (VHF)-band surveillance radar (VHF-SR) at Aero India 2025 in Bangalore.DRDO officials said on 10 February that the VHF-SR can detect low radar cross-section (RCS) stealth targets at a range of 400 km and track up to 100 targets simultaneously. They added that the radar will be available for field trials within next three months, but did not provide any more details about these evaluations.

The VHF-SR uses 80 TR (transmit/receive) antennaarray modules arranged in 16 columns. Each array column is provided with five TR modules to achieve the angular super resolution of 10–12º. The radar utilises gallium nitride (GaN) TR modules, which provide high output power and enhanced signal reception capability for radar operations.

The radar can generate 20–30 kW output power, depending on its modes of operation. DRDO officials did not disclose details about these various modes. The system can be deployed on a 6×6

high mobility vehicle (HMV) and the antenna array can be kept foldable while moving, which makes it suitable for operating in high-altitude field deployments, DRDO said.

Advanced array signal processing technology is used in the system for element-level digitisation and beamforming. Two 100 kVA generators are used to meet the power requirement of the radar, although one of these is for redundancy.

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Aero India 2025: DRDO unveils sensor suite for Dornier 228 patrol aircraft

Source: Janes, Dt. 11 Feb 2025,
URL: https://www.janes.com/osint-insights/defence-news/c4isr/aero-india-2025-drdo-unveils-sensor-suite-for-dornier-228-patrol-aircraft

A model of the Dornier 228 patrol aircraft displayed at Aero India 2025 was shown integrated with the Shyen sensor suite.

India's Defence Research and Development Organisation (DRDO) unveiled at Aero India 2025 its new ‘Shyen' sensor suite for a programme to upgrade the Indian Navy's fleet of Dornier Do 228 maritime patrol aircraft.

The new suite comprises a maritime surveillance radar, an electronic support measures (ESM) system, an electro-optic/infrared (EO/IR) system, and a software defined radio (SDR).

The Shyen suite's radar can detect sea surface and airborne targets, while its ESM provides coverage from very high frequency (VHF) to Ka-band frequencies, with a claimed high probability of intercept. The EO/IR system has the capability to provide high-definition (HD) imagery of targets. DRDO said information acquired by the sensors is relayed back to commanders using the SDR communication suite.

The maritime patrol radar, named 'Kshitij', is a long-range, multirole, active electronically scanned array (AESA)-based radar system. It incorporates a spot/strip synthetic aperture radar (SAR) mode and a ground moving target indicator (GMTI) mode for the surveillance of ground targets. It also features weather and search-and-rescue modes.

The Kshitij radar is integrated with an automatic identification system (AIS), an EO/IR system, and an Automatic Dependent Surveillance–Broadcast (ADS-B) system and employs artificial intelligence (AI) for target classification.

DRDO officials told Janes that the AESA radar is composed of approximately 600 gallium nitride (GaN)-based transmit/receive (T/R) amplifier modules fitted in a tiled configuration and is capable of providing sub-metre resolution of targets.

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Defence News

Defence Strategic: National/International

Raksha Mantri holds bilateral meetings on Day 2 of Aero India 2025

Source: Press Information Bureau, Dt. 11 Feb 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2102076

On the sidelines of Aero India 2025, Raksha Mantri Shri Rajnath Singh held bilateral meetings with Minister of Defence of Armenia Mr Suren Papikyan, Minister of Defence, Malawi Ms Monica Changanamuno and Minister of the Armed Forces of Madagascar Lt Gen Sahivelo Lala Monja Delphin in Bengaluru on February 11, 2025.

The meeting of Raksha Mantri and the Armenian Defence Minister provided both sides with an opportunity to discuss matters related to bilateral defence cooperation. Both leaders acknowledged the growing significance of defence ties between both nations which are progressing well with multi-pronged approach on Military and Military-Technical Cooperation. They discussed increasing bilateral training cooperation and possibilities of joint ventures between defence industries of both countries. Towards enhancing interoperability Armenia's inclusion as an observer in the Joint India-Central Asia Army exercise was decided between both leaders.

During the meeting with the Minister of Defence, Malawi, both leaders had wide-ranging discussions on ways to further strengthen bilateral defence relations and enhance cooperation in areas of training, military courses and capacity building of the Armed Forces. Both sides also agreed to expedite signing of Memorandum of Understanding on Defence Cooperation to foster mutual understanding and enhance strategic interests.

During the meeting with Minister of the Armed Forces of Madagascar, both sides held comprehensive discussions on the matters of bilateral defence cooperation and maritime domain. They also discussed the possibilities for expanding bilateral defence cooperation, particularly early conclusion of an agreement for promoting Maritime Security in the Indian Ocean Region and cooperation in capacity building of Defence Forces.

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Aero India 2025: CEOs Rountable receives unprecedent response with the participation of 116 global CEOs

Source: Press Information Bureau, Dt. 11 Feb 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2102023

The CEOs Rountable, which was graced by Raksha Mantri Shri Rajnath Singh on the opening day of 15th Aero India on February 10, 2025, received an unprecedent response with the participation of 116 global CEOs. Many foreign as well as Indian Original Equipment Manufacturers (OEMs) made announcements regarding their plans for investments, collaborations and setting-up of development centres & Centre of Excellence etc. These include:

- Announcement by Ultra Maritime & Bharat Dynamics Limited for signing of an initial contract for the co-production of US specification
- Announcement by Bharat Forge for their plan for the manufacturing of Landing Gear for certain commercial aircrafts 100% in the country.
- Announcement by Safran, France & Bharat Electronics Limited for their partnership for co-production of Hammer missile in India.

Fifty eight (58) foreign OEMs including John Cockerill (Belgium), Airbus (France), Ultra Maritime (USA), GNT (South Korea), Mitsubishi (Japan), Safran (France), Liebherr Aerospace (France), L3Harris Technologies Inc. (USA), Thales (France), Lockheed Martin (USA), Martin Baker (UK) attended the Roundtable. The Indian OEMs included Bharat Forge Ltd, Adani Defence & Aerospace, Mahindra Defence Systems Ltd, Ashok Leyland Defence and Defence Public Sector Undertakings.

During the meeting, Raksha Mantri invited the global OEMs to utilise the opportunities offered by the expanding Indian defence ecosystem and find targeted solutions & counter measures to the challenges emerging due to the volatile geopolitical landscape of today.

The event was organised on the theme E.D.G.E i.e. ‘Enabling Defence Cooperation through Global Engagement’, based on Business Centric Technology Development, Joint Ventures,

Manufacturing Excellence Hubs, Industry Led Capacity Building, Joint Ventures, Co-Development & Co-Production and Technology Transfer.

During the event, Raksha Mantri also inaugurated 'Defence Testing Portal (DTP)' and released a booklet on 'Defence Testing Capabilities' of the Directorate General of Quality Assurance (DGQA). DTP will enhance ease of doing business in defence testing by improving the visibility of defence testing infrastructure and improved transparency and accountability in conduct of defence tests. The booklet will serve as a guiding document for defence manufacturers and acts as a ready reckoner during important stages of defence procurement and delivery processes.

A short film highlighting the robust Indian defence ecosystem and vividly capturing the remarkable evolution and strides of India's Aerospace & Defence Sector, was showcased as a powerful testament to our unwavering commitment and bold vision for the future.

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Defence Secretary holds bilateral meetings on the sidelines of Aero India 2025

Source: Press Information Bureau, Dt. 11 Feb 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2101615

Defence Secretary Shri Rajesh Kumar Singh held a bilateral meeting with Minister for the House of Lords, UK Lord Vernon Coaker on the sidelines of 15th Aero India in Bengaluru on February 11, 2025. They briefly reviewed the ongoing defence cooperation, particularly industrial collaboration, and the ongoing engagements in the maritime domain. They expressed satisfaction over the beginnings being made in key cooperation areas such as Electric Propulsion and aero engines.

Earlier, the Defence Secretary co-chaired a UK-India Business Council roundtable meeting with Lord Coaker and British High Commissioner to India Ms Lindy Cameron. This roundtable discussed the opportunities for Indian & UK defence companies to work together on ongoing and future joint projects. A large number of UK defence industries attended the roundtable while Indian industry was represented by the Society of Indian Defence Manufacturers leadership.

The Defence Secretary also held a bilateral meeting with Under Secretary of State for Defence, Italy Mr Matteo Perego Di Cremnago. They discussed ways & means to enhance the defence cooperation activities, including increased maritime and air exchanges, and joint project opportunities for Indian & Italian companies.

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Raksha Rajya Mantri holds a series of bilateral meetings on the sidelines of Aero India 2025

Source: Press Information Bureau, Dt. 11 Feb 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2101574

Raksha Rajya Mantri Shri Sanjay Seth held a series of bilateral meetings on the sidelines of 15th Aero India in Bengaluru on February 10, 2025. In his meeting with Under Secretary of State for Defence, Italy Mr Matteo Perego Di Cremnago, both Ministers reviewed the various facets of bilateral defence cooperation including discussion about India's growing capabilities in manufacturing equipment and development of indigenous systems. They reaffirmed their commitment to strengthen the ties in all spheres.

During the meeting with Minister for the House of Lords, UK Lord Vernon Coaker, both Ministers reviewed the bilateral defence cooperation and pledged to strengthen the relations. They also reiterated their commitment to work bilaterally and with other partners for peace, prosperity and rules-based world order, specifically in the Indo-Pacific & Indian Ocean Region wherein cooperation would ensure freedom of navigation and rule of law in the maritime & other domains.

In his meeting with the Minister in Prime Minister's Office (Defence and Security), Lesotho Mr Limpho Tau, both Ministers discussed the immense potential available in the field of defence exports and ways to expand the cooperation.

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Raksha Rajya Mantri addresses India Air Force Seminar at Aero India in Bengaluru

Source: Press Information Bureau, Dt. 11 Feb 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2101905

In pursuit of futuristic technologies and to harness the potential of indigenous defence industry, Indian Air Force (IAF) conducted a seminar on the theme 'Navachar Utkrishtam Bhavisyam (Innovation is the Path to better Future) at Aero India 2025 in Bengaluru, Karnataka on February 11, 2025. The seminar aimed to inspire collaboration between defence forces, industry, and R&D agencies, fostering a robust ecosystem for innovation. Raksha Rajya Mantri Shri Sanjay Seth addressed the event with Chief of the Air Staff in attendance.

“Aatmanirbharta is not merely a policy but transformative vision for India's future. The defence sector stands as a cornerstone of the vision, where fostering indigenous innovation and reducing dependence on foreign technologies are paramount” said Raksha Rajya Mantri while highlighting the role of Indian Air Force in actively supporting indigenous defence development and manufacturing.

Shri Sanjay Seth further stated that development of indigenous defence capability would ensure continued maintenance support and operational edge, along with boosting the operational potential of the Armed Forces. It will ensure that the services are always future ready and ahead of the curve. He threw light upon the fact that in the last few years, IAF has successfully launched 78 projects under iDEX scheme, 48 projects under MAKE and 37 in TDF initiative which are under various stages of development

Raksha Rajya Mantri called upon all stakeholders to join hands in helping the Armed Forces equip the tools they need to address the ever-evolving security challenges. He emphasised that the

MSMEs and startups are the backbone of innovation in India, possessing the agility and creativity to drive change at an unprecedented pace. He further encouraged the MSMEs to leverage their capabilities and take bold steps into defence production, as their contributions are vital to building a secure and self-reliant India.

During the seminar, Raksha Rajya Mantri released the compendium authored by the Air Force, 'IAF Compendium of Challenges & Opportunities for Indian Industry' that identifies key challenges in the defence sector and highlights opportunities for innovation and growth in aerospace domain. He also launched VAYU VITT digital portal created by IAF for placing supply orders, certification & payments between IAF and HAL, which will not only enhance digitisation but also improve efficiency and transparency. Further, he announced the winners of Mehar Baba-II competition and launched the Mehar Baba-III challenge as well.

As part of the event, a panel discussion on 'Manned Unmanned Teaming- From Concept to Targeting' was conducted with eminent experts from the aerospace domain including scientists, industrialists, certification agencies and end users. The panel discussion underscored the pivotal role of Indian Industry in driving indigenous solutions for futuristic technologies to meet the evolving defence and security needs of our Nation.

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Raksha Mantri invites investors to go long on investment in India; Assures them of stable policy environment in India

Source: Press Information Bureau, Dt. 11 Feb 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2101880

Raksha Mantri Rajnath Singh has urged global investors to go long in their Indian investment plans. Speaking at the inaugural function of the Global Investors' Meet organised by the Government of Karnataka in Bengaluru today, Raksha Mantri said that investors will benefit from India's formidable strengths like political stability, huge marketing potential it offers and an ecosystem based on rule of law, free from uncertainty and disorder. He noted that India's immense investment potential has witnessed sustained success, lasting impact and enduring growth.

"If as an investor, you seek world-class infrastructure, Karnataka is now offering next-generation infrastructure facilities. If you require skilled human resources, Karnataka stands out with its highly talented and future-ready workforce," said Shri Rajnath Singh.

Raksha Mantri added that the world has moved beyond the era of IT and software, and stepped into the age of Artificial Intelligence (AI). He exuded confidence that just as Bengaluru gave India its software technology foundation, it will soon provide the nation its first Foundational AI Model.

Shri Rajnath Singh asserted that by investing in Karnataka, one is not just gaining access to the state's resources, but also to the strength of the nation, standing with Karnataka. "India's economic ecosystem is deeply integrated, which means investing here gives you access to the country's vast and diverse resources. When you invest in Karnataka, you are not just investing in one state, you

are tapping into the collective strength of India's vast resources, and a colossal talent pool," he said.

Raksha Mantri highlighted Prime Minister Shri Narendra Modi-led Government's efforts towards addressing the challenges that investors previously faced. "The cumbersome process of obtaining multiple clearances has been replaced by a single-window system, ensuring a faster and hassle-free experience. Beyond the streamlined processes, investors also need a strong market demand for their products," he said.

Shri Rajnath Singh added that several recent economic decisions are expected to further strengthen the demand environment. "On one hand, the Reserve Bank of India has reduced the repo rate from 6.5%to 6.25%, making borrowing more affordable. On the other hand, the Government has introduced a massive income tax cut, in this year's budget announcement. Now, individuals earning up to Rs. 12 lakh annually, are completely exempt from income tax. This significant tax relief will substantially increase the disposable income of our people," he said.

On policy uncertainty, Raksha Mantri emphasised that, today, across all levels of governance in India, including the Central Government, State Governments, and local bodies, there is a broad consensus that sustainable economic development must be driven by a market-led economy, with the private sector playing a leadership role. This shared commitment provides a stable and predictable policy environment, ensuring that businesses can invest with confidence of policy continuity, he said.

Shri Rajnath Singh stressed that India no longer presents red tape to investors, instead red carpet is rolled out for them. This kind of cross-political party consensus on promoting investment plays a crucial role in reducing uncertainty for our investors, he said.

Raksha Mantri also mentioned that India is in the era of Cooperative Federalism, where everyone works with the true spirit of Team India. He gave the example of GST framework, in which representatives from both the Central and State Governments come together to collectively decide tax rates through consensus. This is a testament to how the Central and State Governments are collaborating to shape the country's economy, he said. Shri Rajnath Singh told the investors that by investing today, they are not only unlocking new avenues for your own success, but also contributing to the economic growth of Karnataka, and the nation as a whole.

Chief Minister of Karnataka Shri Siddaramaiah, Union Minister of Consumer Affairs Shri Pralhad Joshi, Deputy Chief Minister of Karnataka Shri DK Shivakumar, Ministers of the state government and industry representatives were also present at the event.

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Raksha Mantri invites global community to co-develop & co-produce advanced systems in India

Source: Press Information Bureau, Dt. 11 Feb 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2101749

Raksha Mantri Shri Rajnath Singh has exhorted the global community to join India in the co-development and co-production of advanced systems, emphasising that the present global security scenario demands innovative approaches & stronger partnerships. He was addressing the Defence Ministers' Conclave 'Building Resilience through International Defence and Global Engagement (BRIDGE)', organised as part of the 15th Aero India in Bengaluru, Karnataka on February 11, 2025. The event witnessed the participation of over 162 delegates from 81 countries, including 15 Defence Ministers, 11 Deputy Defence Ministers, 15 Permanent Secretaries, and 17 Service Chiefs.

"Increasing number of conflicts, new power plays, new methods & means of weaponisation, growing role of non-state actors and the emergence of disruptive technologies have made the world order more fragile. The distinction between border security and internal security is getting blurred as hybrid warfare has the ability to target critical national infrastructure even during peace time. Cyberspace and Outer space are challenging the established definition of sovereignty," said Raksha Mantri.

Shri Rajnath Singh added that disruptive technologies such as Al, quantum technologies, hypersonic and directed energy are transforming the character of warfare, creating new vulnerabilities. He stressed that these changes would have a deep impact on future warfare, forcing reassessment of the capabilities required to meet the challenges.

Raksha Mantri pointed out that international order and peace cannot be ensured from a position of weakness, and the Government of India, under Prime Minister Shri Narendra Modi, is leaving no stone unturned to transform defence capabilities. "We have put in place a conducive policy regime which encourages investment and production of an entire range of modern state-of-the-art land, maritime & air systems. India's emergence as a global hub for R&D and innovation in defence is a testament to our capabilities and aspirations," he said.

Shri Rajnath Singh said India possesses a vibrant defence start-up ecosystem which has the third largest number of unicorns in the world. He highlighted the unparalleled opportunities for collaboration offered by the thriving Indian aerospace and defence sectors, supported by a significant R&D base and an entrepreneurial spirit. "Our skill base enables us to produce at highly competitive costs. India is committed to share state-of-the-art defence equipment, hardware, services, and technology with our friends and partners," he told the Defence Ministers and other foreign delegates.

Raksha Mantri voiced India's vision of peace, security and development, which is inclusive & collaborative, stating that it is guided by Prime Minister Shri Narendra Modi's dynamic five 'S' approach: Samman (Respect), Samvaad (Dialogue), Sahyog (Cooperation), Shanti (Peace) and Samriddhi (Prosperity). These principles, he added, form the cornerstone of India's international engagements and resonate strongly in today's world, which is increasingly witnessing divisions.

Shri Rajnath Singh asserted that India has embraced the vision of 'Security and Growth for All in the Region (SAGAR)' for the Indian Ocean Region (IOR), focussing on key areas such as maritime security, economic development and blue economy. He added that India's collaborative efforts in combating non-traditional threats such as piracy, terrorism, illegal & unregulated fishing, and climate-related challenges underline the commitment for global cooperative action beyond

IOR. “Our commitment extends beyond IOR and serves as a blueprint for fostering global partnerships built on equality, trust, mutual respect, and adherence to international law,” he said.

Raksha Mantri laid stress on the fact that India does not believe in transactional relationships or imposing solutions, and its approach emphasises on mutual capacity building, prosperity and security for the sovereignty of partner nations. He stated that the aim is to empower its partners to chart their own paths, through support that aligns with their national priorities. He described equitable partnership as the foundation of defence collaboration, whether it involves supplying Indian-made ships and aircraft, sharing expertise or conducting joint training programmes.

Shri Rajnath Singh highlighted that India’s position as a preferred partner for defence exports is reinforced by its adherence to quality, reliability, and commitment to the specific needs of partners. “Our defence industry is well-equipped to meet diverse requirements from cutting-edge technology to cost-effective solutions. We take pride in offering customised support that strengthens the capabilities of our partner nations, enabling them to address their security challenges effectively,” he said.

Raksha Mantri termed the BRIDGE initiative as the commitment to transforming dialogue into actionable outcomes, fostering partnerships that are resilient, adaptable, and forward-looking. Challenges ranging from terrorism and cyber-crime to humanitarian crises and climate-induced disasters transcend borders, and they demand a united response.

During the meeting, the Defence Ministers lauded the efforts of Department of Defence Production, Ministry of Defence for organising Aero India and providing an opportunity to world-class manufacturers for showcasing latest innovations and technologies under one roof. They appreciated the concept of BRIDGE which promises to work for peace and prosperity for all. They expressed their willingness to work with India for their defence and other requirements, reaffirming their commitment to further deepen the ties with New Delhi.

The delegates conveyed their desire for Transfer of Technology and co-development & co-production of latest equipment and products, terming India as a partner in resilient supply chain. They acknowledged India’s role in peacekeeping and its efforts towards upgrading the capabilities of many countries in various fields, including defence, health and education.

Shared security concerns also figured during the deliberations, with the Ministers unanimously agreeing to avoid armed conflict, describing it as anti-people and anti-development. Various challenges such as illegal drug trafficking, illegal fishing, terrorism and cybercrime were discussed, with the nations pledging to fight together against these menaces. They collectively agreed to move forward together with the idea of ‘One Earth, One Family, One Future’, which was the theme given by Prime Minister Shri Narendra Modi for India’s G20 Presidency.

Delivering the closing remarks, Raksha Rajya Mantri Shri Sanjay Seth expressed gratitude to the attending dignitaries for their participation. He thanked the Defence Ministers, senior officials, and distinguished guests for their engagement and contributions to the conclave. He emphasised the spirit of collaboration embodied by the theme BRIDGE and expressed optimism for continuing existing partnerships while exploring new areas of mutual prosperity through cooperation.

Secretary (Defence Production) Shri Sanjeev Kumar delivered the welcome address.

Chief of Defence Staff General Anil Chauhan, Chief of the Naval Staff Admiral Dinesh K Tripathi, Chief of the Army Staff General Upendra Dwivedi, Chief of the Air Staff Air Chief Marshal AP Singh, Defence Secretary Shri Rajesh Kumar Singh and Secretary, Department of Defence R&D and Chairman DRDO Dr Samir V Kamat were also among the dignitaries present on the occasion.

The conclave provided a platform to discuss key aspects such as defence capacity building through investment, joint ventures & co-production, collaboration in R&D, training & technological advancements in AI & space, Maritime security cooperation and strategic partnerships.

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India- Egypt Joint Special Forces Exercise Cyclone-Iii Commences In Rajasthan

Source: Press Information Bureau, Dt. 11 Feb 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2101712

The 3rd edition of Joint Special Forces Exercise CYCLONE commenced at Mahajan Field Firing Ranges in Rajasthan yesterday. The exercise is being conducted from 10th to 23rd February 2025. Exercise CYCLONE is an annual event conducted alternatively in India and Egypt. Last edition of the same exercise was conducted in Egypt in January 2024.

The Indian contingent comprising 25 personnel will be represented by troops from two Special Forces Battalions. Egypt contingent also comprising 25 personnel will be represented by Special Forces Group and Task Force of Egyptian Special Forces.

Aim of Exercise CYCLONE is to promote military to military relationship between the two countries through enhancement of interoperability, jointness and mutual exchange of special operations tactics. The exercise will focus on high degree of physical fitness, joint planning and joint tactical drills.

Drills/ aspects to be rehearsed during the exercise will include advanced special forces skills and various other tactics, techniques and procedures as per the current operational paradigm.

The exercise will culminate in a 48-hour long validation exercise to rehearse and validate the tactical drills for counter terrorism operations in desert/ semi-desert terrain. The exercise will also include a display of indigenous military equipment and an overview of the defence manufacturing industry for the Egyptian side.

Exercise CYCLONE will enable the two sides to share their best practices in tactics, techniques and procedures of conducting tactical operations. The exercise will also facilitate developing bonhomie and camaraderie between soldiers of both the sides.

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Completion Of Mehar Baba Competition-Ii

Source: Press Information Bureau, Dt. 11 Feb 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2101617

IAF has been steering the second version of MBC-II. The competition was launched on 06 Apr 22 by honourable Raksha Mantri with theme as "Swarm Drone Based System to Detect Foreign Objects on Aircraft Operating Surfaces". It got concluded on 29 Jul 24.

Four out of initial 129 applicants, were shortlisted as finalists after rigorous assessments by a nominated Committee of Experts (CoE). It comprised of domain experts from IAF as well as civil institutes. The competition was held in four phases of which last phase was conducted in Jul 24.

Based on the assessment, Ayaan Autonomous Systems Pvt Ltd, Pune and Fleet RF Pvt Ltd, Greater Noida, have been declared as winner and first runner up respectively.

IAF is undertaking niche technology development in the turf of Unmanned and autonomous aerial vehicles through its innovative initiative Mehar Baba Competition (MBC). The MBC is forerunner in bridging the gap between Indian industry, academia, and users by providing them common platforms.

The competition has successfully forged a robust ecosystem, resulting in the capture of orders amounting more than thousand cores over the past three years from various industries including armed forces. This economic success is not just a testament to the MBC-II competitiveness but also underscores the potential for significant growth in the drone sector. An equally commendable achievement is the employment generation of thousands of individuals, predominantly fresh graduates from colleges and academia. The competition serves as a beacon, guiding the way for future advancements in UAV technology and reinforcing India's position on the global stage and Honourable PM's vision of Indian being a Global drone hub by 2030.

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Military gadgets that can be used by civilians jostle for space at Aero India 2025

Source: The Economic Times, Dt. 11 Feb 2025,
URL: https://economictimes.indiatimes.com/news/defence/military-gadgets-that-can-be-used-by-civilians-jostle-for-space-at-aero-india-2025/articleshow/118166571.cms

Wind energy usually means elaborate set up with wind turbines stretching along the horizon. But Usha-Urja, a humble device indigenously developed by Indian Air Force harvests wind energy almost out of nothing, an officer said. Jostling for space among the Aero India 2025's eye-catching innovations, this humble contraption may not be worth a second glance for many. But this equipment creates electricity at high altitudes and extreme cold weather conditions when plugged into a generator that sits compactly in a military-edition suitcase.

Usha-Urja's 'wind turbine' makes use of what looks like two split open PVC pipes twisted into an awkward shape onto a base that can be expanded.

This is part of the indigenous innovations of IAF being displayed at Aero India 2025 show on till February 14 at Yelahanka Airforce Base, Bengaluru.

Usha-Urja is a life-saving device for the military in areas where environmental conditions degrade performance of battery-operated generators or the conventional diesel generators.

"People should pay attention to Usha-Urja, because it is one of our few inventions that is open for civilian use or dual use in military parlance," Group Captain KDA Rajesh from Maintenance Command of IAF told PTI.

The prototype costs IAF Rs 5.67 lakh but eventually it could be reduced to Rs 4.14 lakh. When adapted to civilian use, this could further reduce based on the units sold, said Rajesh.

Another indigenously developed contraption mounted on a tripod that Rajesh proudly points to, which is also open for "dual use", is a drone interception wall and repulsion system.

"This is a low-cost anti drone system that builds on the concept of RF signal jamming and acts as a 500m virtual wall against drones," said Rajesh.

This repulsion system can be extremely useful in any security or surveillance systems and it's estimated to cost only Rs 65,000, said Rajesh.

At another end of the hall sits another little innocuous looking gem -- a real time aircraft tracking system (RTAT) box -- that plugs into NaviC, a satellite-based navigation developed by Indian Space Research Organisation (ISRO), and SatCom or Satellite Communication to deduct the exact location.

Yet another IAF 'success story' that could be deployed for civilian use.

"To put it simply, remember the Malaysian Airlines airplane that went missing without a trace? That wouldn't have happened if they had this RTAT box inside the airplane," said the Group Captain, incharge of RTAT exhibit at Aero Show, who did not want to be named.

According to him, the box provides continuous and automatic updates on its position every four seconds to the ground station.This cost-effective contraption could be a great value-add for any airline, added the Group Captain.

Not far from Indigenous Exposition of IAF is the Indian Army's display of its indigenously developed 'solutions' for its pressing problems. But it consisted mostly of nuts and bolts and pistons.

That is because Indian Army's indigenous efforts are mostly for 'sustenance', said Brigadier Salash Uniyal, in charge of indigenisation at the Directorate of Indigenisation.

"Basically our inventory consists of technology imported from places like Russia, for which we had to find local solutions to, or we will be forced to discard them for lack of parts and such. So we focus on maintenance rather than invention," said Brigadier Uniyal.

For instance, the Indian Army could now manufacture Shell 155MM HE 107, a high-explosive payload used over long distances, thanks to indigenous interventions. Earlier they used to import them from Sweden, pointed out Brigadier Uniyal.

The Defence Research and Development Organisation (DRDO) too has displayed its indigenously developed technology at Aero India 2025.

But except for a high-definition surveillance camera displayed there which uses sensors for creating real target imagery, currently being used by Indian Navy and Border Security Force, nothing is open for conversion to civilian use, said Sathish Anthony, Technical Officer, Directorate of management services of DRDO.

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Thales, Bharat Dynamics to provide first supply of man portable air defence systems to India

Source: The Economic Times, Dt. 11 Feb 2025,
URL: https://economictimes.indiatimes.com/news/defence/thales-bharat-dynamics-to-provide-first-supply-of-man-portable-air-defence-systems-to-india/articleshow/118153051.cms

Thales and Bharat Dynamics Limited announced on Tuesday at Aero India 2025 here that they will soon provide the first supply of Laser Beam Riding MANPAD (LBRM) Very Short-Range Air Defence missiles and launchers to the Ministry of Defence. Earlier in 2021, a partnership agreement was signed between Thales and BDL to collaborate on the LBRM project with the support of the Indian and UK governments, stated a press release issued by Thales on Tuesday.

According to the press note, LBRM, manufactured with up to 60 percent indigenous content in India, are short-range, man-portable air defence systems optimised to counter air threats, including fixed-wing Fighter Ground Attack aircraft, late-unmasking Attack Helicopters, and drones.

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'We're just not confident of HAL': Air chief's lament

Source: Hindustan Times, Dt. 11 Feb 2025,
URL: https://www.hindustantimes.com/india-news/were-just-not-confident-of-hal-air-chief-s-lament-101739298510043.html

The Chief of the Air Staff, Air Chief Marshal AP Singh, has questioned the ability of Hindustan Aeronautics Limited (HAL) to meet the air force's critical requirements in the backdrop of a lingering delay in the supply of new fighter jets, saying he has "no confidence" in the state-run plane maker, shows a video of a conversation between Singh and HAL officials during an event at Aero India 2025.

"I can only tell you our requirements and what our worries are. You have to alleviate those worries and make us more confident. At the moment, I am just not confident of HAL, which is a very wrong thing to happen... Everything is [driven by] 'ho jayega' (will happen) and 'karenge' (we will do it) !" Singh is heard saying in the clip shot on Monday and posted by on YouTube.

The IAF chief was talking to a group of HAL officials while sitting in the cockpit of the locally produced Hindustan Jet Trainer (HJT-36), whose name has been changed from Sitara to Yashas following extensive modifications that fixed lingering problems.

The development was first reported on Tuesday by defence news website Livefist.

IAF and the defence ministry did not comment on the air chief's rare assessment.

The air force is deeply concerned about the current pace of the light combat aircraft (LCA Mk-1A) programme because of the possible risks a delay in the induction of new fighter planes could pose to the air force's combat effectiveness. The air force ordered 83 Mk-1A fighters for ₹48,000 crore in February 2021 and plans to buy 97 more Mk-1As at a cost of around ₹67,000 crore.

The first aircraft was to be delivered to IAF by March 31, 2024, but that didn't happen due to a combination of factors including US firm GE Aerospace's inability to supply the F404 engines on time and delays in some key certifications.

HAL unveiled the LCA Mk-1A, at the airshow on Monday, attempting to allay concerns about its readiness for induction into the IAF after delays.

"I was promised when I come here in February that I will see 11 Mk-1As ready minus the engines. That is what I was promised. Not a single [fighter] is ready... You [have started] calling it Mk-1A. It is not Mk-1A. Mk-1A is after the capability comes in. Then only it is Mk-1A. (Not) just by change of one software to other software...the weapon comes in, when the capability comes in, then it is Mk-1A. But 'maza nahi aa raha hai' (it's not working out) ," the air chief said.

Four Mk-1As performed in the inaugural flypast at the airshow, demonstrating their capabilities before an international audience that included defence ministers from 30 countries among officials from 80 nations at the Yelahanka airbase.

However, HAL is yet to begin critical trials on the LCA Mk-1A, involving the testing of the indigenous Astra beyond-visual-range missile, the locally made electronic warfare suite and the Israeli Elta radar. HAL is targeting a March 31 deadline to deliver the first fighter jet to the IAF after completing the necessary certification requirements.

In the video, Singh is heard saying, "HAL is our own company. We all have worked there. I have also served in HAL as a temporary pilot...But I find that we are just not in mission mode."

An unidentified HAL official is heard saying "I can assure you that no stone will be left unturned. Your directions are noted."

To which the IAF chief responds by saying, "'Please... I am an outsider in your system. In your system, I am nobody...I feel only a few are putting in effort or may be everyone is putting effort in their own silo and that the overall things are not working out. I don't know what. Something has to change. Something drastic has to change...And I find it ridiculous that when I say something, the media take the negative part of it."

When asked a question on the concerns flagged on multiple occasions by the IAF chief on the delay, HAL chief DK Sunil said on Tuesday the chief's concern is understandable as the air force's fighter strength was going down. "We have now promised that we will have all the (Mk-1A) structures ready and have conveyed this to the IAF during multiple meetings at various levels. Once the engines are available, the Mk-1As will start rolling out," Sunil said at a media briefing.

To be sure, he was not specifically asked to comment on Singh's latest remarks, and the question was general in nature.

Sunil also said that two separate deals worth ₹1.3 lakh crore for 97 more Mk-1As for the IAF and 156 light combat helicopters for the air force and the army were likely to signed in "three to six months".

He said the issue related to engine supply was being resolved and HAL would execute the first order for 83 Mk-1As in three-and-a-half years, and the upcoming follow-on order for 97 more fighters by 2031.

The IAF chief was sharing the agony of a service that is responsible for defending the nation and needs to upgrade its operational capability urgently, said strategic affairs expert Air Marshal Anil Chopra (retd).

“The problem is that there are significant delays in the Indian fighter programme and we are postponing the acquisition of foreign aircraft as the focus is on self-reliance. HAL must produce fighters for the IAF on time,” Chopra added.

The Mk-1A is an advanced variant of the Mk-1, which has already been inducted by IAF. The LCA is set to emerge as the cornerstone of IAF’s combat power as the world’s fourth largest air force is expected to operate around 350 LCAs (Mk-1, Mk-1A and Mk-2 versions) in the coming decade and beyond.

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Transmission snag led to ALH crash: HAL chief

Source: Hindustan Times, Dt. 12 Feb 2025,
URL: https://www.hindustantimes.com/india-news/transmission-snag-led-to-alhcrashhalchief-101739300131068.html

Hindustan Aeronautics Limited (HAL) chief DK Sunil on Tuesday said that a “swashplate fracture” caused the crash of a coast guard Dhruv advanced light helicopter (ALH) at Porbandar in Gujarat on January 5, and a high-powered panel examining the reason for the breakdown of the critical component will submit its report in three weeks.

“A swashplate fracture was the root cause of the accident. The defect investigation committee (DIC) is looking at what caused the material failure and is expected to submit its report in three weeks. Depending on the finding of the panel, we will give clearance to the military’s ALH fleet for flying again,” Sunil said during a media briefing at Aero India 2025 being held at the Yelahanka airbase.

Steps will then be taken to fix the problem before the military’s ALH fleet of 330 helicopters is declared airworthy again. It was grounded after the January 5 crash.

HT was the first to report on February 4 that investigators found that a rare failure of a critical part in the transmission system --- the swashplate assembly --- caused the coast guard crash. The multi-mission helicopter has been designed and developed by HAL.

A detailed analysis by the Council of Scientific and Industrial Research-National Aerospace Laboratories (CSIR-NAL), Bengaluru, found that the swashplate assembly that crashed compromised the ability of the pilots to control the helicopter’s motion. Z

Two pilots and an aircrew diver were killed in the coast guard crash.

The DIC consists of officials from the Bengaluru-based Centre for Military Airworthiness and Certification (CEMILAC), the Directorate General of Aeronautical Quality Assurance and HAL. It will determine whether the issue is related to quality, inspection or maintenance.

The ALH underwent a design review followed by a replacement of a defective control system only in 2023-24.

The ALH's armed version Rudra was also grounded after the January 5 crash. The army and the Indian Air Force account for more than 90 Rudra helicopters. The ALH has been involved in around 15 accidents during the last five years, putting the spotlight on its troubling safety record.

The coast guard suspended ALH operations following an accident last September when a helicopter crashed into the Arabian Sea near Porbandar. Then too, two pilots and an aircrew diver were killed. The grounding was for a one-time check. The three services did not ground their fleets then.

The coast guard cleared the helicopters for flying a few weeks later, after a safety inspection involving HAL, CEMILAC and all coast guard units.

Last September's accident, too, came after the design review that culminated in a critical safety upgrade on the military's ALH fleet, initiated by HAL. The upgrade involved installing upgraded control systems on the helicopters to improve their airworthiness.

The comprehensive design review came after the ALH fleet was grounded several times in 2023 too after a raft of accidents called into question its flight safety record.

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Hindustan Aeronautics Ltd expects order book to reach Rs 2.5 lakh crore in six months

Source: The Indian Express, Dt. 12 Feb 2025,
URL: https://indianexpress.com/article/cities/bangalore/hindustan-aeronautics-ltd-expects-order-book-rs-2-5-lakh-crore-9830501/

Hindustan Aeronautics Limited (HAL), India's largest aerospace and defence manufacturer, said on Tuesday that it would have an order book of Rs 2.5 lakh crore in the next six months, driven by expectations of two major orders.

Addressing a press meet on the sidelines of the biennial Aero India 2025 show at Bengaluru's Yelahanka Air Force Station, D K Sunil, Chairman and Managing Director, HAL, said the order book growth would make the company one of the leading players in South Asia.

"The company has received orders worth Rs 55,000 crore in the first nine months of the fiscal year and is expecting to close orders worth another Rs 1.2 lakh crore in the next five to six months. Including the present orders, the total orders will be worth Rs 2.5 lakh crore and the production will continue for the next 5-6 years," he said.

"We are actively pursuing two major contracts. One is for 97 light combat aircraft (Tejas) and 156 light combat helicopters (Prachanda). Both are in the advanced stages of negotiations. We are hoping to close them in the next 5-6 months," he added.

"We have ramped up production lines to meet the requirements. Three units for manufacturing LCAs (light combat aircraft), two in Bengaluru and one in Nashik, Maharashtra, have been set up. With these three units, we target to manufacture 26 aircraft by 2026. We have also partnered with private players like Tatas and L&T to increase our production capacity," he further said.

Speaking about exports, Sunil said that HAL was continuing efforts with existing client Guyana and was also in touch with Malaysia for the Dornier aircraft. "We are also in talks with the Philippines and North America. HAL is spending Rs 2,500 crore on research and development every year to improve and upgrade its products. Presently, Tejas and light combat helicopter productions have taken HAL to new heights. In the next decade, LCA-2, Indian multirole helicopters, fifth-generation advanced medium combat aircraft, along with newer products like UCAPs, will lead HAL's order book growth," he added.

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India Greece Ties: 'भूमध्य और लाल सागर में भारतीय सैन्य मौजूदगी अहम'; ग्रीक रक्षा मंत्री बोले- यूरोप को भी लाभ

Source: Amar Ujala, Dt. 12 Feb 2025,
URL: https://www.amarujala.com/world/greece-defence-minister-nikos-dendias-indian-military-presence-in-mediterranean-red-sea-2025-02-12

प्रधानमंत्री नरेंद्र मोदी के अमेरिका दौरे से पहले यूरोपीय देश ग्रीस के रक्षा मंत्री ने बड़ा बयान दिया है। उन्होंने कहा है कि भूमध्य सागर और लाल सागर सहित प्रमुख अंतरराष्ट्रीय क्षेत्रों में भारत को अब अधिक प्रमुख भूमिका निभानी चाहिए। रक्षा मंत्री निकोस डेंडियास ने प्रमुख वैश्विक ताकत के रूप में उभर रहे भारत की भूमिका को रेखांकित किया और कहा कि वे भारत के प्रतिबद्ध मित्र हैं। उन्होंने कहा कि भारतीय अर्थव्यवस्था ने जो कुछ भी हासिल किया है, वे उसकी सराहना करते हैं, लेकिन अब इस बड़े देश को अलग भूमिका भी निभानी चाहिए।

भारत दुनिया में बड़ी ताकत बना, अब जिम्मेदारियों का समय

उन्होंने कहा, 'भारत एक बड़ा देश है, यह एक बड़ी शक्ति बन रहा है। इसलिए, इसके साथ बड़ी जिम्मेदारियां भी आती हैं।' रक्षा मंत्री डेंडियास ने कहा कि ग्रीस का स्पष्ट दृष्टिकोण है कि भारत को लाल सागर के साथ-साथ भूमध्य सागर में भी महत्वपूर्ण ताकत की भूमिका निभानी चाहिए। उन्होंने कहा कि ग्रीस भारतीय वायु सेना, नौसेना को भूमध्य सागर, यूरोप और दुनिया में बड़ी भूमिका में देखना चाहेगा।

अमेरिका-भारत संबंध पर भी करीबी नजर रख रहा ग्रीस

पीएम मोदी के आगामी अमेरिका दौरे और राष्ट्रपति डोनाल्ड ट्रंप के साथ मुलाकात को लेकर ग्रीक रक्षा मंत्री ने कहा, मुझे लगता है कि प्रधानमंत्री मोदी राष्ट्रपति ट्रंप के साथ इसी पर चर्चा करने जा रहे हैं। यह अच्छा संकेत है कि वाशिंगटन में राष्ट्रपति ट्रंप से मिलने वाले पहले नेताओं में से एक पीएम मोदी हैं। बता दें कि ट्रंप के निमंत्रण

पर पीएम मोदी 12-13 फरवरी को अमेरिका दौरा करेंगे। ट्रंप के दूसरे कार्यकाल में यह पीएम मोदी के साथ पहली मुलाकात होगी।

पीएम मोदी अमेरिका में ट्रंप से मुलाकात के पहले पेरिस में वेंस से मिले

यह भी दिलचस्प है कि ट्रंप से मुलाकात करने से पहले पीएम मोदी ने अमेरिकी उपराष्ट्रपति जेडी वेंस से पेरिस एआई समिट के दौरान मुलाकात की। दोनों के बीच भारत और अमेरिका के आपसी हितों पर चर्चा हुई। इस मुलाकात को लेकर व्हाइट हाउस के आधिकारिक बयान में कहा गया कि वेंस और पीएम मोदी ने इस विषय पर भी बात की कि कैसे अमेरिका स्वच्छ, "विश्वसनीय" अमेरिकी परमाणु प्रौद्योगिकी में निवेश के माध्यम से भारत को अपने ऊर्जा स्रोतों में विविधता लाने में सहायता कर सकता है।

उपराष्ट्रपति के बेटे विवेक को जन्मदिन की शुभकामनाएं और उपहार

दोनों नेताओं की इस बैठक के बाद एक तस्वीर भी सामने आई, जिसमें वेंस और पीएम मोदी के अलावा भारतवंशी उषा वेंस भी दिखीं। वेंस उनकी पत्नी उषा और पीएम मोदी को कॉफी का आनंद लेते देखा गया। व्हाइट हाउस के बयान के मुताबिक पीएम मोदी ने अमेरिकी उपराष्ट्रपति के बेटे विवेक को जन्मदिन की शुभकामनाएं दीं। इसके अलावा उन्होंने वेंस के बच्चों को कई उपहार भी दिए।

भारत और अमेरिका के संबंध से पहले निजी रिश्तों की गर्मजोशी

खुद पीएम मोदी ने भी वेंस से मुलाकात के बाद एक्स हैंडल पर पोस्ट में लिखा कि अमेरिकी उपराष्ट्रपति और उनके परिवार के साथ शानदार बैठक हुई। कई विषयों पर बातचीत के साथ-साथ वेंस के बेटे विवेक के जन्मदिन के जश्न में भी शामल होकर काफी खुशी हुई। जवाब में वेंस ने भी इस मुलाकात और पीएम मोदी की गर्मजोशी को लेकर आभार प्रकट किया।

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Defence conundrum

Source: The Tribune, Dt. 12 Feb 2025,
URL: https://www.tribuneindia.com/news/editorials/defence-conundrum/

IT’s intriguing that India continues to be the world’s biggest arms importer despite the Modi government’s consistent emphasis on self-reliance (Atmanirbharta) and indigenous production in the defence sector. In his address at the ongoing Aero India 2025 in Bengaluru, Defence Minister Rajnath Singh said the evolving global security scenario demanded innovative approaches and stronger partnerships. But is greater strategic collaboration helping India become a global powerhouse of defence research, development and innovation? Or is it making the country more dependent on foreign manufacturers? These questions need to be addressed with an open mind by the Centre as well as the top brass of the defence forces.

The government’s resolve to cut down on arms imports and boost exports is being put to the test by US President Donald Trump. He is insistent that India should buy more US-made security equipment. Trump, who is set to host Prime Minister Modi, wants a ‘fair’ trading relationship with New Delhi. And he has made no bones about his zealousness to introduce new tariffs on steel and

aluminium imports into the US, a move that could hit many Indian companies. India, which is keen on co-production of Stryker combat vehicles and fighter jet engines, needs to ensure that such deals are not skewed in favour of the US.

Russia's preoccupation with the Ukraine war has prompted India to rely less on its traditional defence partner and focus more on acquisitions from Western nations in a bid to diversify supplies. Transfer of technology is a prerequisite for bolstering domestic production in the long run, but some Western firms have shown reluctance on this count. The Defence Minister has asserted that India does not believe in transactional relationships or imposing solutions. However, the same cannot be said with confidence about the country's top partners. New Delhi must judiciously prioritise its strategic interests, striking a balance between indigenous capacity-building and its 'Make for the world' aspirations.

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Aero India 2025: Challenges continue in India's indigenisation process of defence items

Source: The Hindu, Dt. 11 Feb 2025,
URL: https://www.thehindu.com/news/national/karnataka/aero-india-2025-challenges-continue-in-indias-indigenisation-process-of-defence-items/article69206681.ece

As the Indian armed forces look to indigenise critical components for defence items, hundreds of products identified to be locally produced are being showcased to the private sector at the Aero India 2025 currently underway in Bengaluru. While a large number of those are for the decades-old hardware that need replacement, some of the components that India is looking at includes for new acquisitions such as Rafale fighter aircraft and Apache helicopters.

While more than 13,400 parts/components have been indigenised, more than 37,900 defence items have been listed in the positive indigenisation list by the government last year. These are to be manufactured locally involving the private sector, especially the MSMEs.

Aero India 2025: GE Aerospace signs contract with IAFA large number of these components are for equipment, vehicles, aircrafts and helicopters among others sourced from Russia, France and Israel, sources said. "The component can be a small bolt to a big spare. For example, the production of side gear box for T-90 was successfully indigenised recently."

The Indian Air Force is looking at avionics, electronics and mechanical parts besides others for MI 17, Sukhoi MK30, MIG 29, Rafale, Mirage 2000, AN 32 and IL 76. "There are about 130 critical items identified for indigenisation and displayed at Aero India. This is a miniscule number compared to what we require," sources said.

ChallengesThe indigenisation process started years ago to save foreign exchange and limit the delay in procurement but it still faces acute challenges, acknowledged an official in the Directorate of Indigenisation.

"Since the component required is part of scheduled maintenance, getting them manufactured here is a challenge as bulk orders cannot be placed. Even the orders cannot be sustained regularly. It may be difficult for MSMEs to invest on manufacturing small quantum," an official said, adding that at times the components are not available in the market or are available at a very high cost. "Procurement process itself can be delayed or the government may end up paying 10 to 20 times more."

Production of components

Another official said that though transfer of technology would have taken place, specifics for production of components are not explained. "India's strength in metallurgy is not strong. The original equipment manufacturers (OEM) do not share specific details about heat treatment, making it tough for us to produce. In this situation, India is looking at alternative components. Some may pass the stress test and some may not."

In a few components, there are times when indigenous manufacturing of parts has failed, sources said. Even among those components for which design and drawings are made available by the OEM as part of transfer of technology, it becomes difficult to manufacture in India, sources said.

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Russia offers Su-57 E to India, including production and transfer of critical technology

Source: The Hindu, Dt. 12 Feb 2025,
URL: https://www.thehindu.com/news/national/russia-offers-su-57-e-to-india-including-production-and-transfer-of-critical-technology/article69206809.ece

Rosoboronexport, Russia's State-owned defence exports company, a participant in the ongoing Aero India 2025, has offered to partner with India on the Russian fifth generation fighter aircraft (FGFA), the Su-57E.

"Rosoboronexport, together with United Aircraft Corporation (UAC), proposes to localise FGFA aircraft in India. This production of the FGFA at the HAL (Hindustan Aeronautics Limited) plant might take place as early as 2025. It can be provided this year itself," a representative of Rosoboronexport said on the second day of the airshow.

UAC is the manufacturer of the aircraft.The representative further said that fifth generation technologies would be provided to India. "Additionally, Rosoboronexport offers technological development in terms of fifth generation technologies comprising engine, Active Electronically Scanned Array (AESA) radars, optics, AI elements, software communication means, and air weapons that might also boost the Advanced Medium Combat Aircraft (AMCA) national programme of India," the representative said.

He added that India can manufacture these critical technologies without any fear of sanctions.

"Manufacturing FGFA means manufacturing critical, crucial elements in India without a fear that tomorrow, something would not be delivered because of sanctions. There shall be no fears in terms

of potential threat of sanctions or a decision from above that some parts or components of the aircraft won't be delivered to India," the representative said.

He also said that Russia offered long-term cooperation to India, including partnership in the upgradation of the aircraft's capabilities.

"The Russian side proposes to continue 60 years of successful cooperation in terms of aircraft production between our countries," he said.

Joint developmentIndia and Russia in 2010 signed a deal for the design and joint development of the FGFA programme by the Sukhoi Design Bureau, Rosoboronexport, and HAL. Both India and Russia each invested $295 million for the preliminary design of the aircraft. However, India withdrew from the project in 2018 due to multiple issues, including transfer of technology.

Test pilot Sergey Bogdan spoke of how he had been preparing for the airshow, and the complex manoeuvres he had been performing. "I find myself interested in all the aircraft that have been displayed here; a great number of different aircraft are being displayed here. I might come here again," Mr. Bogdan said.

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Science & Technology News

IIT Madras And ISRO Develop IRIS Chip, Showcasing India's End-To-End Semiconductor Capability

Source: Swaraj Magazine, Dt. 12 Feb 2025,
URL: https://swarajyamag.com/news-brief/iit-madras-and-isro-develop-iris-chip-showcasing-indias-end-to-end-semiconductor-capability

In a significant breakthrough for India's semiconductor industry, the Indian Institute of Technology Madras (IIT Madras) and the Indian Space Research Organisation (ISRO) have jointly developed an indigenous semiconductor chip that promises to serve multiple applications across sectors, including space exploration and computing technologies, reports Business Standard.

The IRIS (Indigenous RISC-V Controller for Space Applications) chip was developed by IIT Madras in collaboration with ISRO's Inertial Systems Unit (IISU) in Thiruvananthapuram.

Manufactured at the Semiconductor Laboratory (SCL) in Chandigarh, the chip was packaged at Tata Advanced Systems in Karnataka.

The project is being hailed as a "major step towards Atmanirbhar Bharat in addressing computing needs for space and other sectors."

The IRIS chip is built on the Shakti processor baseline, a pioneering initiative by IIT Madras under the 'Digital India RISC-V' programme, spearheaded by the Ministry of Electronics and Information Technology (MeitY).

It has been designed to meet the strategic computing requirements of ISRO's command and control systems, enhancing operational efficiency and reliability in space missions.

The project aims to reduce dependency on foreign semiconductor components and bolster India's indigenous capabilities in chip design and fabrication.

Professor V Kamakoti, who leads the Shakti microprocessor project, highlighted the significance of the achievement, stating, "After RIMO in 2018 and MOUSHIK in 2020, this is the third SHAKTI chip we have fabricated at SCL Chandigarh and successfully booted at IIT Madras. That the chip design, fabrication, packaging, motherboard design and fabrication, assembly, software, and boot all happened inside India, is yet another validation that the complete semiconductor ecosystem and expertise exist within our country."

The chip's motherboard was manufactured by PCB Power in Gujarat, with assembly and mounting carried out by Syrma SGS in Chennai. The software for the chip was developed at IIT Madras, ensuring an entirely 'Make in India' approach.

ISRO Chairman V Narayanan lauded the collaboration, stating, "We at ISRO are very happy that IRIS Controller conceived by IISU based on SHAKTI processor of IIT Madras could be successfully developed end-to-end with Indian resources. This marks truly a milestone in 'Make in India' efforts in semiconductor design and fabrication."

Kamaljeet Singh, Director General of SCL Chandigarh, also praised the initiative, saying, "SCL is proud to be associated with IIT Madras and ISRO in the successful development of IRIS-LV Processor. SCL is committed and continually working in association with academia and startups to facilitate and achieve Atmanirbharta in the realisation of niche products."

The IRIS chip is expected to play a pivotal role in future ISRO missions while also opening up new possibilities for the Internet of Things (IoT) and computing applications.

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ISRO tests Gaganyaan communications with ESA ground station network

Source: The Times of India, Dt. 12 Feb 2025,
URL: https://timesofindia.indiatimes.com/science/isro-tests-gaganyaan-communications-with-esa-ground-station-network/articleshow/118164236.cms

The Indian Space Research Organisation (Isro) has achieved a milestone in its Gaganyaan human spaceflight programme by successfully completing crucial communications testing with the European Space Agency (ESA) ground station network.

To maximise communication coverage during Gaganyaan missions, Isro plans to utilize both its own facilities and external ground station support from global partners.

The recently conducted Radio Frequency Compatibility Tests (RFCT) validated the network operations of the Gaganyaan Orbital Module's communications systems, marking a critical step toward ensuring reliable communication during future manned missions.

"The comprehensive testing involved integrating multiple systems, including Gaganyaan's onboard Telemetry, Tracking & Command (TTC), Data Handling, and Audio/Video Systems with ESA's ground stations. The completion demonstrates end-to-end compatibility between Isro's spacecraft communications and ESA's ground network," Isro said.

Pointing out that mission success heavily relies on maintaining constant communication between the Mission Control Centre and the Gaganyaan Orbital Module, Isro said this connection was vital for crew communication, monitoring onboard systems, and enabling ground-based flight controllers to execute commands.

In the first week of December 2024, the two agencies signed a Technical Implementing Plan (TIP) to enable ESA to provide critical ground tracking support for India's Gaganyaan missions. The support through the Technical Implementing Plan will ensure uninterrupted data flow and communication with the Orbital Module, crucial for monitoring and conducting orbital operations.

And, in the third week of December 2024, further strengthening its international space cooperation, Isro had signed an agreement focusing on astronaut training, mission implementation, and research experiments with ESA.

According to Isro, the collaboration establishes a comprehensive framework for joint activities in human space exploration, with particular emphasis on astronaut training programmes and research initiatives.

These agreements are not standalone but a continuation of the long-standing cooperative relationship between the two space agencies. Both of them have a proven track record of supporting each other in numerous successful space missions.

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ISRO's indigenous thrust gets a fillip

Source: The Tribune, Dt. 12 Feb 2025,
URL: https://www.tribuneindia.com/news/comment/isros-indigenous-thrust-gets-a-fillip/

On February 7, the Indian Space Research Organisation (ISRO) successfully tested the re-ignition of the made-in-India CE20 cryogenic engine in space-like vacuum conditions at the ISRO Propulsion Complex, Mahendragiri, Tamil Nadu. This is another remarkable milestone in ISRO's saga of indigenous cryogenic technology.

Most of us turn off the motor while driving down a slope and let gravity accelerate us downward. We restart the engine and continue driving as we approach the foothill. Similarly, to place satellites in various orbits or for intricate interplanetary missions, we must turn on the cryogenic engine mid-flight, after a period of days or months. For example, a lander mission to Mars will require the

engine to be turned on after roughly 10 months. Currently, ISRO has only one engine, the Liquid Apogee Motor, which can be re-ignited and powered by liquid fuel.

In the trial, the upgraded CE20-U engine worked as planned under fuel tank pressure conditions expected to prevail while restarting mid-flight. ISRO will make additional alterations and perform step-by-step trials before rolling out the CE20-U engine for the next-generation launch vehicle.

When released, pressurised air exits a balloon, thus propelling it in the opposite direction. This illustrates the basic rocket principle, known as Newton's third law. Likewise, if hot gas can be generated and released from a nozzle, the rocket can be made to propel forward in the opposite direction. Combustion requires fuel and oxygen, which are referred to as propellants. Rocket propellants are of three types: solid, liquid and gaseous. Instead of a solid propellant, one might utilise kerosene and a suitable oxidiser as fuel. This is a liquid propellant rocket. Solids and liquids are less voluminous than gases. In normal temperature and pressure, the amount of water in its vapour stage will take up 16 times the space it would take in its liquid state. As a result, gaseous fuels must be cooled to liquefy them before they can be used as rocket fuel. That is cryogenic fuel.

The term 'cryo' means ice-cold or chilled. Cryogenics is the science and technology of substances at temperatures below -153°C, the boiling point of methane. The most common cryogenic propellants are hydrogen liquefied at -253°C as fuel and oxygen liquefied at -183°C as oxidiser. When liquefied hydrogen and liquefied oxygen combine, they are highly reactive and produce steam.

The lighter the gas, the lesser the energy required to accelerate it. As hydrogen is the lightest of the atoms, we can use it as fuel and liquid oxygen as an oxidiser to achieve more thrust per kilogramme of fuel, making it ideal for space travel. Cryogenic rockets are critical for deep space missions such as lunar landings and interplanetary probes and for putting larger payloads into geostationary orbit 36,000 km above earth's surface.

The US, Russia, Japan, India, France and China are the only countries operating cryogenic rocket engines. These engines are used only in the upper stage of the vehicle and operate beyond the earth's atmosphere after the vehicle has entered space. According to international consensus, anything more than 100 km beyond the earth's surface is considered space.

If cryogenics are more efficient, why not use them immediately at liftoff? The high efficiency of cryogenic engines is not suitable for the initial launch stages, where more raw power is required to overcome gravity.

Once the red light turns green, you try to go as fast as possible. You need fuel with good pickup. However, while driving long distances on a motorway, a fuel-efficient engine benefits your wallet and the environment. Petrol vehicles have a higher initial pickup than diesel cars, but the latter have more pulling power and mileage. Similarly, the launch vehicle must overcome inertia, climb into the sky, race against gravity's gripping hands and then overcome atmospheric drag. Solid or liquid fuel with a powerful thrust is the best option. However, once there is no atmospheric resistance in space, the vehicle is already propelling, and a fuel-efficient engine provides superior mileage.

The Soviets and the Americans fought to create more efficient launch vehicles capable of putting heavier spacecraft into orbit, reaching the moon, and undertaking interplanetary travel. The RL10, which debuted in 1963, was the first cryogenic rocket engine built in the US. It was utilised in the Saturn 1 rocket during the early stages of the Apollo moon landing mission and still powers US launch vehicles.

The Soviets designed the RD-56, also known as the 11D56, at about the same time in 1964. They shifted their focus from fully cryogenic to semi-cryogenic, developing the powerful RD-180, which used liquid kerosene and liquefied oxygen as launch propellants. In parallel, the Soviets developed a better-designed cryogenic engine, the KVD-1, that was sold to India.

By the 1990s, ISRO was looking for cryogenic technology and had initially approached Japan and the US. The engines were far too pricey. Meanwhile, the Soviets were eager not only to sell their KVD-1 engines but also to transfer knowledge, allowing ISRO to manufacture and produce its own cryogenic engines at a significantly lower cost than that quoted by US corporations.

In the following months, the Soviet Union collapsed and the US exerted pressure on Russia not to export the technology, claiming that India might use it as a nuclear missile. The argument was flimsy because missiles must be ready for launch in seconds, while cryogenic engines require at least 24 hours of fuelling. It was a hypocritical irony because the US came forward only months ago to sell engines at significantly higher prices. The Russians honoured their word and delivered six engines, but they could not impart technology due to the American embargo.

Slapped with the ban, ISRO learnt from the six engines and created its own cryogenic engine, CE20. The Indian design is not a replica, as the Russian engines are staged combustion engines, but the made-in-India CE20 are gas-generator cycle engines. After years of hard labour, the CE20-powered LVM3 launch vehicle delivered the GSAT-19 into geostationary transfer orbit on June 5, 2017. The engine was fitted in the Chandrayaan 2 and 3 launch vehicles. The human-rated engine will assist Indian astronauts in reaching orbit during the Gaganyaan expedition. With re-ignition capability, the CE20 engine will power Indian spacecraft on ambitious interplanetary missions.

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India must build own engineering software: ISRO chief

Source: Deccan Chronicles, Dt. 12 Feb 2025,
URL: https://www.deccanchronicle.com/southern-states/telangana/india-must-build-own-engineering-software-isro-chief-1860700

India’s dependence on foreign engineering software must end if the country is to achieve true self-reliance in space technology and manufacturing, said Indian Space Research Organisation (Isro) chairman V. Narayanan, highlighting the role of its software like FEAST (finite element analysis of structures).

Narayanan said software like FEAST would be crucial in the human spaceflight programme, Bharatiya Antariksh Station and Next Generation Launch Vehicles (NGLVs). Dependence on foreign software not only increased costs but also created vulnerabilities. “We need to build and

rely on our tools," he told the the 8th National Finite Element Developers'/FEAST Users' Meet (NAFED08), hosted at IIT Hyderabad.

At the event, Isro's Vikram Sarabhai Space Centre (VSSC) unveiled FEAST 2025, the latest version of the software which has been under development for years. Dr S. Unnikrishnan Nair, director, VSSC, noted that over 4,000 FEAST licenses had been issued across India, helping institutions and industries move away from proprietary foreign software. He also spoke about Pravaha, an indigenous computational fluid dynamics (CFD) software, which is nearing a commercial launch.

IIT Hyderabad director Prof. B.S. Murty explained how FEAST contributed to India's manufacturing sector and aligns with the Make in India initiative. "When we see Indian-made products, technologies and software being used globally, it reflects our journey towards becoming a developed nation," he said, adding that IIT Hyderabad is ready to collaborate further on indigenous engineering solutions.

The event brought together over 250 participants from academia, industry, and research institutions, making IIT Hyderabad the first second-generation IIT to host the event. The two-day programme featured discussions on structural dynamics, finite element modeling, uncertainty quantification and thermal analysis.

Industry representatives from Lyra Infosystems, SVR Robotics and Marconi Technologies presented their work in structural simulation. Competitions, technical sessions and an exhibition showcasing FEAST's evolution were also held. The event concluded with a call for greater academic and industry participation in the development of homegrown engineering software, reinforcing India's push for self-reliance in critical technology sectors.

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India's Digantara establishes US operations for Space intel-ahead of PM Modi's visit

Source: The Times of India, Dt. 11 Feb 2025,
URL: https://timesofindia.indiatimes.com/science/indias-digantara-establishes-us-operations-for-space-intel-ahead-of-pm-modis-visit/articleshow/118134447.cms

Bengaluru-headquartered space technology company Digantara, which specialises in space surveillance and intelligence, has expanded its operations to the United States with a new presence in Colorado, ahead of PM Narendra Modi's visit to the US to strengthen strategic cooperation in defence and the Indo-pacific region.

Colorado Governor Jared Polis announced the expansion Tuesday, affirming the state's dedication to innovation and strengthening ties with India's growing space industry. Digantara started its journey as an IISc-incubated firm.

The company's US expansion stems from key India-US strategic initiatives, including the Initiative on Critical and Emerging Technology (iCET) and the INDUS-X framework, programmes Digantara has participated in since their inception.

The firm has invested more than $1 million to date and plans to invest between $10-15 million over the next six to eight months to establish a dedicated facility for spacecraft manufacturing and space optics production in Colorado.

This facility will support Intelligence, Surveillance, and Reconnaissance (ISR) needs in the US. The State of Colorado has pledged nearly $1 million in operational incentives to support Digantara's US expansion.

“Our expansion into the US reinforces our commitment to advancing space surveillance and intelligence globally. As space threats evolve, so must our investments in resilient technologies, positioning us to support mission-critical defence and intelligence operations,” Digantara co-founder and CEO Anirudh Sharma, said.

The company enters the US market with established contracts with multiple Department of Defence (DoD) agencies, including the United States Air Force (USAF) and Space Force. Digantara is involved in programmes led by the Space Rapid Capability Office (Space RCO), Office of the Under Secretary of Defense for Research and Engineering (OUSD), and Space Systems Command’s SDA TAP LAB to develop advanced SSA capabilities.

Within the $60 billion Space Surveillance and Intelligence market, Digantara is pursuing defence contracts in both the US and India. With the US holding the predominant market share, the expansion will centre on delivering solutions for mission-critical operations, war-gaming analytics, and strategic defence applications. As it executes existing government contracts, the company aims to achieve $25-30 million in revenue over the next two years.

Digantara recently launched its first space-based surveillance satellite, SCOT, aboard the SpaceX Transporter-12 mission. Equipped with electro-optical sensors, SCOT can track resident space objects as small as 5cm.

The mission focuses on addressing existing sensor limitations by enabling precise tracking and higher revisit rates, enhancing space safety and situational awareness. Following post-launch contact, the satellite is undergoing commissioning. Through its US expansion, Digantara aims to strengthen India-US collaboration, enhance space surveillance capabilities, and address national security challenges.

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Earth's inner core is changing. Here's what the study has found

Source: The Economic Times, Dt. 11 Feb 2025,
URL: https://economictimes.indiatimes.com/news/science/earths-inner-core-is-changing-heres-what-the-study-has-found/articleshow/118138155.cms?from=mdr

At Earth's centre lies an iron and nickel sphere approximately 1,500 miles wide, which scientists now believe may not be entirely solid.

Recent research indicates that the outer boundary of the inner core has undergone notable shape alterations over recent decades.

"The most likely thing is the outer core is kind of tugging on the inner core and making it move a little bit," said John Vidale, a professor of earth sciences at the University of Southern California.

Vidale and his research team published their findings Monday in Nature Geoscience.This discovery adds to existing uncertainties about our planet's centre. Previous geophysical studies revealed that the inner core's rotation differs slightly from Earth's overall rotation rate. Its spinning speed also varies - previously rotating marginally faster than outer layers, but now rotating somewhat slower.

Earth's geological structure includes the inner core as its deepest component. The crust, where humans reside, spans only a few miles. Beneath lies the mantle, comprising 84% of Earth's volume at 1,800 miles thick, with sections soft enough to flow and drive continental movement. The liquid outer core sits between the mantle and inner core.

Scientists study Earth's interior indirectly through earthquake vibrations traversing the planet. These seismic vibrations' speed and direction vary based on rock density and elasticity.

This research examined earthquakes occurring in the South Sandwich Islands, a volcanic chain in the South Atlantic Ocean.

The frequency of earthquakes in this region often results in near-identical events occurring years apart in terms of magnitude and location.Researchers identified over 100 such "earthquake pairs", analysing data from 1991 to 2004 using two seismometer arrays located more than 8,000 miles from the islands - one near Fairbanks, Alaska, and another in Yellowknife, Canada's Northwest Territories.

Initially aiming to refine previous findings suggesting inner core rotation slowdown, researchers encountered unexpected signal patterns at the Yellowknife array."Basically, the wiggles are different," Vidale noted.Fortuitously, during some paired events, the inner core maintained identical orientation.

Identical earthquake waves passing through the same Earth section should produce matching seismic readings at both locations. While Fairbanks showed consistency, Yellowknife displayed variations.

Yellowknife's closer proximity to the South Sandwich Islands meant seismic waves travelled less deeply into the inner core compared to Fairbanks, suggesting changes near the inner core's outer boundary.

Vidale suggested that outer core turbulence or gravitational effects from denser mantle regions might have altered the inner core boundary, potentially explaining the signal variations.

"We expect it's soft because it's near melting point," he explained. "So it's no surprise if it deforms."

This research continues to generate discussion. "The offered interpretation is sound," said Hrvoje Tkalcic, an uninvolved Australian National University geophysics professor, "although it is not the only possible explanation, as the authors acknowledge."

Recent geophysical debates centred on whether seismic signal differences result from rotation rate changes or inner core shape alterations. "This study thus reconciles the last debate by proposing a combination of both causes," Tkalcic stated.

Lianxing Wen, geosciences professor at Stony Brook University, who reported possible boundary shape changes in 2006, remains sceptical about differential inner core rotation rates.Wen noted that Yellowknife data contradicted this hypothesis. "Ordinarily, such inconsistencies should lead to an abandonment of the original inconsistent interpretation," he stated.

Shape changes alone could explain seismic data without rotation rate variations, according to Wen.Vidale himself expresses some uncertainty. "We're pretty sure we were right, but this isn't a bulletproof paper," he said. "How sure? I sort of put it at 90%.

"Tkalcic emphasises the need for additional data, achievable "by building seismological infrastructure in remote areas of the planet, including the ocean floor."

Xiaodong Song, Peking University professor who initially proposed differential inner core rotation in the mid-1990s, concurred.

"This new study," Song said, "should motivate a new round of exploration into strange behaviors at the heart of the planet."

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