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## Hawk-i Successfully Test Fires Smart Anti Airfield Weapon



In a big boost to the indigenous Hawk-i program, HAL today successfully test fired a Smart Anti Airfield Weapon (SAAW) from the Hawk-i aircraft off the coast of Odisha. The indigenous stand-off weapon developed by Research Centre Imarat (RCI), DRDO is the first smart weapon fired from an Indian Hawk-Mk132. “HAL has been focusing on the Atmanirbhar Bharat campaign. The Company owned Hawk-i platform is being extensively used for certification of systems and weapons developed indigenously by DRDO and CSIR labs” said Mr. R. Madhavan, CMD, HAL. The aircraft flown by HAL test pilots Wg Cdr (Retd) P Awasthi and Wg Cdr (Retd) M Patel executed the weapon release in a text book manner and all mission objectives were met. The telemetry and tracking systems captured all the mission events confirming the success of the trials. Mr. Arup Chatterjee, Director, Engineering and R&D, HAL said HAL is indigenously enhancing the training and combat capability of Hawk-i. HAL is in discussions with Indian Armed Forces for integration of various weapons on Hawk platform. The Hawk-i is HAL’s internally funded program offering the Indian Armed Forces an upgrade and combat capability for the Hawk, transforming it into an Advanced Jet Trainer providing training on sensors and weapons in peacetime into a potent combat platform during conflict. The SAAW is an aircraft launched, advanced, precision strike weapon of 125 Kg category used to attack and destroy enemy airfield assets such as radars, bunkers, taxi tracks, runways within a range of 100 kms. SAAW has been earlier successfully test fired from Jaguar aircraft.

<https://hal-india.co.in/>

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## CURRENT AFFAIRS

### **Airbus to show advanced aircraft, choppers at Aero India**

Aviation major Airbus will showcase a wide selection of its advanced aerospace technologies and services at the Aero India 2021 exposition, all set to be held at the Yelahanka Air Force Station here from February 3 to 5. Airbus exhibits will be located at Stand B.2.6 in Hall B. On display will be a scale model of the C295, medium transport aircraft and a digital display of the A330 MRTT (Multi-Role Tanker Transport) aircraft. Scale models of the multi-role helicopter H225M and the AS565MBe Panther, the all-weather, multi-role force multiplier will also be on display. The S850 Radar will also be there on a digital platform, a high-power satellite offering SAR capabilities. It can monitor multiple targets with frequent revisits. A company release said that visitors to the Airbus pavilion can learn about the aviation major's 'Make in India', 'Skill India' and 'Startup India' initiatives.

**Source:** <https://www.deccanherald.com/>

### **Aero India 2021 next month will showcase a range of indigenously developed helicopters**

With emphasis on promoting defence exports, the India Pavilion at Aero India 2021 next month will showcase a range of indigenously developed helicopters while Defence Minister Rajnath Singh is scheduled to hold a conclave of Defence Ministers from the Indian Ocean Littoral (IOR) states, according to a senior defence official. "We have matured in helicopters and have several in various categories. We are now capable of [designing and manufacturing] any kind of helicopter," the official said. A Light Utility Helicopter (LUH), a weaponised Advanced Light Helicopter (ALH) and a Light Combat Helicopter (LCH) will be on display inside the pavilion, the official said. A civilian version of the ALH will be on display outside. All these helicopters have been designed and manufactured by the Hindustan Aeronautics Limited (HAL). In addition to the Defence Ministers' conclave, plans are also on to hold an Air Chiefs' conclave. Also, about six to seven official delegations are expected to be there at Aero India in addition to various companies. With less than a month left for the biennial air show, construction of the halls and facilities is at advanced stages of completion. Stating that there was a lot of interest in Aero India as other such major air shows have been cancelled, the official said, "More than 98% of the stalls are booked and about 93% of them have paid for it." LUH for Army The LUH for the Army, which has completed all tests and also demonstrated its high-altitude capability in hot and high weather conditions last September, is likely to get the Initial Operational Clearance (IOC) at the Aero India, the official said. The Air Force variant was accorded the IOC by the Centre for Military Airworthiness & Certification (CEMILAC) in February last year. The LUH is a three-tonne helicopter positioned as replacement for the Cheetah and Chetak helicopters in service. According to HAL, it is capable of flying at 220 kmph, service ceiling of 6.5 km and a range of 350 km with 500 kg payload. In view of the pandemic, the 13th edition of the biennial Aero India will be held only on three business days from February 3. Every safety precaution with respect to COVID-19 has been taken. The government has set an ambitious target of achieving a manufacturing turnover of \$25 billion or ₹1,75,000 crore including exports of \$5 billion in aerospace and defence goods and services by 2025.

**Source:** The Hindu

### **ISRO likely to launch rocket dedicated to private satellites on February 28**

Indian Space Research Organisation (ISRO) is set to launch a rocket that will solely carry private satellites, including three satellites made by Indian startups, from Sriharikota on February 28. The PSLV-C51, whose primary payload will be Brazil-developed Amazonia-1 satellite, will be launched from the first launchpad, sources said. ISRO chairman K Sivan has called the upcoming PSLV launch, dedicated to private satellites, "as part of space reforms", which are aimed at increasing participation of private companies in the space sector. Amazonia-1, which Brazil took eight years

to develop for monitoring the ecosystem of the Amazon forest, has already landed at the Sriharikota launch centre via Chennai from the south American country. Four members of Brazil's National Institute for Space Research team, which developed Amazonia-1, also travelled with the satellite to oversee its successful launch. The other three privately built desi satellites are 'ANAND' from startup Pixel India, 'SATISH SAT' from Space Kids India and 'UNIT-SAT' by a consortium of universities. On the three satellites built by Indian startups, Sivan had said, "PSLV-C51 (mission) is going to initiate a new era of space reforms in India and I am sure that these private people will take this activity further and provide services for the entire country." The move to allow private players in space exploration follows the Modi Cabinet's decision in June 2020, allowing participation of the private sector in the entire range of space activities, including interplanetary missions.

**Source:** <https://timesofindia.indiatimes.com/>

### **Aero India 2021: HAL to Showcase 'Aatmanirbhar Formation Flight'**

A unique flying display of HAL's indigenous platforms (both fixed and rotary wing) aptly titled 'Aatmanirbhar Formation Flight' will be part of the flying display during the 13<sup>th</sup> edition of Aero India-2021 scheduled from February 3, 2021 at Air Force Station, Yelahanka. HAL will showcase its prowess in defence and aerospace centered on the theme 'Conceive. Indigenise. Collaborate' at the world's first hybrid exhibition. The 'Aatmanirbhar Formation Flight' consisting HAL products such as LCA trainer (LIFT Trainer), HTT-40, IJT, Advanced Hawk Mk 132 and Civil Do-228 will fly in a special formation showcasing the spectrum of trainers and signifying self-sufficiency in the trainer segment. HTT-40, Advanced Hawk Mk 132 and Civil Do-228 will be available for customer demonstration flights. Sukhoi 30 MKI, Advanced Light Helicopter (ALH) Dhruv, Light Combat Helicopter (LCH), Light Utility Helicopter (LUH) will also take part in the flying display. Static display will include Do 228, Hindustan Turbo Trainer (HTT)-40 and LUH and ALH Mk III. HAL's major attraction at HALL-E will be the Combat Air Teaming System (CATS) simulator. The simulator will have TEJAS-MAX cockpit as the mother-ship platform with the embedded air teaming intelligence concepts to demonstrate the fully integrated as well as autonomous wingman platforms and swarming of drones to engage in the mission. Immersive mission visualization will be projected over a wider screen apart from the command and display at TEJAS-MAX cockpit. The outdoor display adjacent to HAL stall will feature Rotary wing products namely LCH, ALH Mk IV Rudra and ALH Civil variant. HAL's indoor pavilion will be spread over an area of around 1126 sqm in Hall-E and will showcase indigenously designed and developed fixed and rotary wing platforms, technologies covering power plants and future generation combat capable airborne solutions.

**Source:** <https://hal-india.co.in/>

### **DRDO to showcase its prowess during Aero India-2021**

The Defence Research and Development Organisation (DRDO) will exhibit its latest defence technologies and demonstrate many systems during the Aero India-2021 at the Yelahanka Air Force Station in Bengaluru from February 3 to 5. Themed around Atmanirbhar Bharat, more than 300 products, technologies, innovations in the indoor, outdoor, static and flying display during the show will be displayed, the DRDO said in a statement. According to the organisation, more than 30 laboratories of DRDO connected to aeronautical development will exhibit their products and technological achievements in this mega event. The major attraction of DRDO's participation in the event is the flying display of Airborne Early Warning & Control (AEW&C) system, Light Combat Aircraft (LCA) Tejas and LCA Navy. While the air display will show the aerodynamic capabilities of the aircraft, LCA navy will also be on Tarmac for static display. "The DRDO is developing technologies for all major defence domains and has been participating in this exhibition in a big way in all its editions," said the DRDO. It also said it has been working towards Atmanirbhar Bharat and has taken up many policy initiatives to work closely with all stakeholders of the ecosystem. The models and exhibits are shown in various technology categories and thrust is on digital display of data to highlight the product details. The highlights of indoor systems include Combat Free Fall System, models of Advanced Medium Combat Aircraft (AMCA), ABHYAS - High-speed Expendable Aerial Target, Twin Engine Deck Based Fighter (TEDBF), FCS System for Light Combat

Aircraft and Aerosta... The displays will also include Nirbhay missile and P- 16 Heavy Drop System. In the area of materials, titanium sponge being developed for INS Vikrant, the aircraft carrier will be shown along with other important products for aeronautics applications. The DRDO said Defence Minister Rajnath Singh on February 3 will release DRDO export compendium, New Procedure for Design, Development and Production of Military Aircraft and Airborne Stores (DDPMAS) document for airworthiness certification, Aeronauti... Among the missiles, full scale models of various Surface to Air missiles like Astra, Long Range Surface to Air Missile (LRSAM), Quick Reaction Surface-to-Air Missile (QRSAM), Air to Air Missile Astra, New Generation Anti- Radiation Missile (NGARM) an... Besides the missiles, technology sub-systems like RF Seeker, IIR Seeker, PINAKA Guidance Kit, Model of rail track rocket sled (RTRS) facility and exploder for naval warheads etc will also be on display. Indian Maritime Simulation System (IMSAS), Air Warfare Simulation System and the Air Defence Simulation System are also planned to be demonstrated as working systems.

**Source: <https://www.deccanherald.com>**

### **ISRO's next PSLV launch in three months: K Sivan**

The Indian Space Research Organisation (ISRO) is all set to kickstart its PSLV launch for the year 2021 in February or March. ISRO chairman Prof K Sivan announced this during the 55th annual convocation of Bangalore University held in Bengaluru. Delivering the convocation address, he said, "by end of March or in the beginning of April, the new PSLV will be ready for launch." In his speech, Sivan stressed about private and public sector partnerships. "More efforts should be made towards private and public sector partnerships and joint ventures to benefit from investments and technology transfers. This will increase skills among workers to make them more employable. The government has already announced space sector reforms for greater participation of non-governmental entities in its activities. Our next PSLV launch will have satellites from start-up agencies as the first product of these reforms" he said. Sivan emphasised on adopting green technologies to avoid environmental damage. "As India continues to focus on economic growth, it needs to ensure that environmental damage is limited by adopting green technologies. ISRO has done the technology transfer of its space grade lithium-ion batteries to industry. This technology is useful for mass adoption in electrical vehicles, without remaining perpetually dependent on foreign sources," the scientist said. ISRO is developing green propulsion for its human spaceflight mission, he announced. "In future, all propulsion stages may adopt green technology," Sivan said.

**Source: <https://www.deccanherald.com>**

### **HAL to showcase 'Aatmanirbhar Formation Flight' at Aero India-2021**

Hindustan Aeronautics Limited will mount a special flying display of the company's indigenously developed aircraft at Aero India which it has titled the "Aatmanirbhar Formation Flight." The formation flight will consist of nine fixed-wing aircraft and helicopters. The company said its involvement in Aero India, which will start on February 3 at Yelahanka Air Force Station, is centered around the theme of: "Conceive. Indigenise. Coll... Featured will be the LCA trainer (LIFT Trainer), the HTT-40, IJT, the Advanced Hawk Mk 132 and the Civil Do-228, which HAL said showcase the "spectrum of trainers and signifying self-sufficiency in the trainer segment." Other aircraft to participate in the flight are the Sukhoi Su-30 MKI, the advanced light helicopter (ALH) Dhruv, the light combat helicopter (LCH) and the light utility helicopter (LUH) The HTT-40, Advanced Hawk Mk 132 and Civil Do-228 will also be available for customer demonstration flights. Aircraft on static display will include Do 228, Hindustan Turbo Trainer (HTT)-40 and LUH and ALH Mk III. HAL said it will also showcase its combat air teaming system (CATS) simulator at the expo. The simulator will use the Tejas-Max cockpit as the mothership platform with embedded air teaming intelligence concepts. The objective is to demonstrate full integration of the system as well as autonomous wingman platforms and swarming of drones to engage in the mission. Immersive mission visualization will be projected over a wider screen apart from the command and display at Tejas-Max cockpit.

**Source: <https://www.deccanherald.com/>**

## TECHNOLOGY

### **India working on 5th-gen fighter, some 6th-gen capabilities will be incorporated in it: IAF chief**

Eight Rafale aircraft have already arrived in India and three more are expected by the end of this month, Air Chief Marshal Rakesh Kumar Singh Bhadauria said. The IAF chief was speaking at a press conference after the conclusion of 'Exercise Desert Knight-21' held in Jodhpur by the air forces of India and France. He said IAF has initiated a fifth-generation fighter aircraft programme with the Defence Research Development Organisation (DRDO) and plans to incorporate some sixth-generation capabilities in it as well. "Our present vision is to incorporate all the latest technologies and sensors in our fifth-generation aircraft," Bhadauria said. "We started work on fifth-generation aircraft a little late. So technologies and sensors contemporary to that period of development would be added into fifth-generation fighters," he added. Bhadauria said when IAF received the Rafale aircraft, the first priority was to operationalise it and integrate it with the existing combat fleet. "It has already been done, and the current exercise Desert Knight was the result of that," he said. "We have some Indian pilots training in France and some in India itself. We have enough pilots to have a right pilot-cockpit ratio," the Air Chief Marshal said, adding that the entire induction would be completed by next year. Earlier, Bhadauria congratulated both the air forces for successfully completing the exercise in just four days. Desert Knight-21 was scheduled to be held over five days. "It is not in terms of interoperability which has been learnt in this exercise, but employment of best practices, operational philosophies and mutual as well as professional interaction," he said. Later, talking to the media, French Ambassador to India Emmanuel Lenain said bilateral cooperation between the two countries has been going on ever since the first French aircraft landed in India in 1953. "Now Rafale is the reflection of this strengthened cooperation and partnership," Lenain said. "When India faced difficulties during its atomic test in Pokran in 1998, we were at your side while other countries opposed and objected. And we were also by your side in cooperational manner when you had difficulties with one of your neighbours," the ambassador said. He said this exercise would further help in building mutual trust and pave the way for more cooperation.

**Source:** <https://www.deccanherald.com>

### **IN-SPACE to provide level playing field for private companies, start-ups in space sector: Jitendra Singh**

Union Minister Jitendra Singh said the newly created Indian National Space Promotion and Authorisation Centre (IN-SPACE) will provide a level playing field for private companies as well as start-ups in the space sector. The Union Cabinet had last year approved participation of the private sector in the entire range of space activities, including planetary exploration missions. Singh, the minister of state for the Department of Space, said more than 25 industries have already approached the Department of Space for undertaking space activities according to the guidelines. The Indian Space Research Organisation (ISRO) in collaboration with the private sector will boost the goal of 'Aatmanirbhar Bharat' (self-reliant India), he said. "The decision to create Indian National Space Promotion and Authorisation Centre (IN-SPACE) will provide a level playing field for private companies as well as start-ups. The proposed range of space activities includes small satellite launch vehicle, geospatial services, satellite constellation, application products," a statement quoting Singh said. The government had announced reforms in the space sector last year. Indian National Space Promotion and Authorisation Centre (In-SPACE) has been created under the Department of Space as a separate vertical for taking independent decisions with respect to permitting and regulating space activities of the private sector. Singh said the move to open up the space sector for private participation was a path-breaking step taken by Prime Minister Narendra Modi and has been widely welcomed by leading private players across the country. Besides enhancing the capacity and resources of the space sector, the increased participation of private players will also discourage brain-drain of talented space scientists and experts who were otherwise moving out of India in search of a break. The space and satellite technology are being extensively used in railways, road and bridge construction, agriculture sector, housing, tele-medicine, besides disaster management and accurate weather forecast, he added.

**Source:** <https://www.deccanherald.com>

## BUSINESS

### Several countries have shown interest in procuring Tejas aircraft: HAL chairman Madhavan

The delivery of the Tejas Light Combat Aircraft (LCA) to the Indian Air Force under a Rs 48,000-crore deal will begin from March 2024 and around 16 aircraft will be rolled out annually till the completion of the total supply of 83 jets, Chairman and Managing Director of Hindustan Aeronautics Limited R Madhavan said. In an interview to PTI, Madhavan also said that a number of countries have shown keen interest in procurement of the Tejas aircraft and that the first export order is likely to come by in the next couple of years. Madhavan said that Tejas Mark 1A jet has superior performance levels compared to China's JF-17 combat aircraft as it has better engine, radar system and electronic warfare suit, besides an edge in the overall technology. "The biggest difference, of course, is the air-to-air refuelling which is non-existent in the competitor's plane," he said. The Cabinet Committee on Security (CCS) chaired by Prime Minister Narendra Modi on January 13 approved the Rs 48,000-crore deal to procure 73 Tejas Mk-1A variants and 10 LCA Tejas Mk-1 trainer aircraft from the HAL to boost the Indian Air Force's combat prowess. Giving a break-up of the cost components, Madhavan said the basic price of the aircraft will be around Rs 25,000 crore while Rs 11,000 crore will be used for ground support equipment and other required infrastructure at the bases and around Rs 7,000 for basic customs duty and output GST. The HAL chairman said the cost for each fighter version of the aircraft will be Rs 309 crore and Rs 280 crore for the trainer. "The price is tight but we are fine with it," Madhavan said. The total cost of Rs 48,000 crore includes design and development cost of Rs 2,500 crore to be given to Aeronautical Development Agency (ADA) and around Rs 2,250 crore set aside for variations in foreign currency exchange rate. The Tejas Mk-1A will be equipped with an active electronically scanned array radar, beyond visual range missile, electronic warfare suite and air-to-air refuelling system. A formal contract for the deal is expected to be signed between the HAL and the IAF on February 5 at the Aero India exhibition in the presence of President Ram Nath Kovind. "Three years is the strategic timeline for developing infrastructure as well as delivery of the aircraft. We will meet the timeline. The first aircraft is expected to be delivered by March 2024. "Initially we will supply around four aircraft and increase the number to 16 annually from 2025," Madhavan said. Asked whether a possible export order will push the delivery deadline for supplies to the IAF, Madhavan said the HAL will strictly follow the timeline for domestic order and can always set up additional production lines when necessary. "We are planning for more than 16 aircraft annually so that in case of any other order coming in, we can take it up. We are already increasing production rates. "The second phase of the LCA plant has already come up, though we need it after 2024-25," he said. The IAF has already inducted a batch of Tejas aircraft as part of its initial order of 40 jets. Madhavan said the Tejas programme will boost the overall aerospace sector in India, noting that it currently involves 563 domestic enterprises. "And it will go up to 600 to 650. This is important for the ecosystem." He said Tejas will be able to operate as efficiently as any other aircraft in all regions including mountainous Ladakh. The government has been majorly focusing on boosting domestic defence production and set a target of Rs 1.75 lakh crore (\$25 billion) turnover in defence manufacturing by 2025. According to estimates, the Indian armed forces are projected to spend around \$130 billion in capital procurement in the next five years. In May last year, Finance Minister Nirmala Sitharaman rolled out several reform measures for the defence sector including making separate budgetary outlay to procure Indian-made military hardware, increasing FDI limit from 49 percent to 74 percent under the automatic route and generating a year-wise negative list of weapons which won't be imported.

Source: <https://timesofindia.indiatimes.com/>

### After Tejas, India moves ahead to procure more MiG-29s & Sukhois

India is now formally moving ahead to procure 21 MiG-29 and 12 Sukhoi-30MKI fighters from Russia, along with upgrades of their existing fleets, after the Cabinet Committee on Security approved the production of 83 indigenous Tejas jets last week. For starters, the RFP (request for proposal) for the 21 MiG-29 fighters, whose bare airframes are lying in a mothballed condition in Russia since the later-1980s, will soon be issued to Russian state-run defence export arm Rosoboronexport, said defence sources on. The acquisition of these MiG-29s at "relatively lower prices" will

add to 59 such jets already with IAF. The 12 Sukhoi-30MKIs, in turn, will add to the 272 such jets already contracted from Russia for about \$15 billion, with the bulk of them being licensed produced by Hindustan Aeronautics. IAF has so far inducted 268 of the original 272 Sukhois, with at least nine of them being lost in crashes over the years. Along with the 83 new Tejas, which will be inducted in the January 2024-December 2028 timeframe under the Rs 46,898 crore deal cleared by the CCS, the additional MiG-29s and Sukhois are meant to stem the freefall in the number of IAF fighter squadrons. With the progressive phasing out of the obsolete MiG-21s, MiG-23s and MiG-27s, the force is down to just about 30 squadrons (each has 16-18 jets) when at least 42 are required to tackle the “collusive” threat from China and Pakistan. The remaining four MiG-21 “Bisons” squadrons are also slated to retire by 2024. The defence ministry in July last year gave the initial nod for the acquisition of the 21 MiG-29s with the latest avionics and electronic warfare suites, and further upgrade of the 59 existing jets to “ensure commonality across the fleet”, at a cost of Rs 7,418 crore. The cost of 12 new twin-seat Sukhois, along with advanced electronic warfare capabilities as well as additional supplies and spares, in turn, was estimated to be Rs 10,730 crore. While 42 Sukhois are now being modified to carry the precision-strike BrahMos supersonic cruise missiles, the entire fleet will also subsequently be “fully enhanced” with more advanced avionics, radars and weapons to further bolster their combat capabilities. IAF also plans to get the “acceptance of necessity” by this April-May for its long-term mega “Make in India” project for 114 new fighters for over \$20 billion under the “strategic partnership” policy. The French Rafale fighter will obviously be the frontrunner if India goes ahead with this project, having already bought 36 of them under the Rs 59,000 crore deal inked in September 2016. The other six contenders are F/A-18 and F-21 (US), Gripen-E (Sweden), Sukhoi-35 and MiG-35 (Russia) and the Eurofighter Typhoon.

**Source:** <https://timesofindia.indiatimes.com/>

### **India will see tremendous increase in defence exports in next 4-5 years: DRDO chairman**

There will be tremendous increase in defence exports from India in the next four to five years, chairman of the state-run Defence Research and Development Organisation (DRDO) G Satheesh Reddy said on. “Within next 4-5 years, this country will have a lot of indigenous content in the Indian armed forces and we will be seeing tremendous amount of increase in exports,” he said at a webinar organised by industry body CII. Reddy enlisted a number of measures the government and the DRDO have taken to boost the participation of private defence industry “In each project of ours, we have invited development and production partner from the industry. Even critical systems like missiles have been opened to the private industry,” he said. Recently, the government has approved the export of Akash missiles to various countries, he mentioned. On December 30, 2020, the government had approved the export of indigenously-developed surface-to-air Akash missile system and set up a panel to ensure faster approvals for acquisition proposals by various countries. Reddy said a country is “real atmanirbhar (self-reliant)” when the design, development and production of state-of-the-art systems that are required by the armed forces are done within the country. India is one the largest importers of arms globally. According to estimates, the Indian armed forces are projected to spend around \$130 billion in capital procurement in the next five years. However, the government now wants to reduce dependence on imported military platforms and decided to support the domestic defence manufacturing The defence ministry has already set a goal of a turnover of \$25 billion (Rs 1.75 lakh crore) in defence manufacturing in the next five years that included an export target of \$5 billion (Rs 35,000 crore) worth of military hardware.

**Source:** <https://www.deccanherald.com/>

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